
AGILE®



X/TRA™ *XLi*

**Internal XES to PCL Translator for
Xerox N-Series Printers**

**USER'S
MANUAL**



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Release Notes

This document was printed in November 1999 and describes release 2.52 of the AGILE X/TRA XLI.

Fill in for future reference:

X/TRA XLI Purchase Date: _____

X/TRA XLI Serial Number: _____

About This Manual

This manual covers the installation and use of the AGILE X/TRA XLi in Xerox N-Series laser printers. AGILE makes no warranties, expressed or implied, as to its completeness or accuracy. The information in this manual is current as of the date of its publication, but it is subject to change by AGILE at any time without notice. This manual is not intended to be used for manufacturing or engineering specifications, and it is assumed that the user understands the interrelationship between any affected systems, machines, programs and media.

AGILE periodically updates this manual for clarity, to correct inaccuracies and typographical errors, or to document added or changed product features. AGILE will be pleased to improve the manual by implementing suggestions from our customers. Please put suggestions in writing and mail to AGILE at the addresses below:

AGILE

Technical Publications
875 Alfred Nobel Drive
Hercules, CA 94547-1899

e-mail: TechPubs@agileinc.com

FCC/DOC Statement

This equipment generates, uses and can radiate radio frequency energy. If it is not installed and used in strict accordance with these instructions, it may cause interference to radio and television reception. This equipment has been tested and complies with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▲ Reorient the receiving antenna.
- ▲ Relocate the X/TRA XLi with respect to the receiver.
- ▲ Move the X/TRA XLi away from the receiver.
- ▲ Plug the printer into a different outlet so that the printer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The booklet, *How to Identify and Resolve Radio-TV Interference Problems*, prepared by the Federal Communications Commission, may also be helpful. This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

WARNING: This equipment has been certified to comply with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC rules. Only peripherals (computer input/output devices, printers, plotters, etc.) certified to comply with the Class A (commercial) or Class B (residential) limits may be attached to the X/TRA XLi. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

Note: This equipment uses shielded cables to meet compliance limits for a Class A computing device. Shielded cables must be used to ensure this equipment continues to meet these limits. The shield must be terminated to the metallic connector at both ends to guarantee adequate suppression of undesirable emissions. All cables are fully double shielded (Mylar foil and tinned copper braid.)

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INTRODUCTION

General Information

The AGILE X/TRA XLi is an internal PDL translator that enables Xerox DocuPrint® N17, N24, N32 and N40 printers to accept data streams intended for Xerox Escape Sequence (XES/UDK) printers.

The emulated printer is a Xerox 4213 Model II, firmware revision 2.1Y, although some XES commands used by more advanced printers are also supported.

The X/TRA XLi connects to the host via a standard Centronics printer cable. Throughput for documents of above average complexity and no graphics is rated at up to the rated printer speed of each particular model. However, with documents of extreme complexity, actual throughput speeds may vary.

Configuration of the X/TRA XLi is performed with a menu driven PC/MS DOS program (XTRAEDIT). Nonvolatile storage preserves configuration options and downloadable objects even when the power is disconnected from the unit.

Features and Options

The X/TRA XLi is a fully functional XES to PCL PDL translator and is available with several application-specific options.

Specifications

Printers Supported

- ▲ Xerox N17, N24, N32, N40

Port Specifications

Host Interface

- ▲ 1 IEEE 1284C parallel input port

Throughput

- ▲ Rated printer speed up to 40 pages per minute

Resource Storage Space

- ▲ 512K FLASH (Standard)
- ▲ 256K RAM

Firmware Upgrades

- ▲ Firmware upgrades via provided PC/MSDOS software

Product Support

- ▲ Toll-free tech support is available from 7:30 AM. to 4 PM. PST
 - ▲ Two-year product warranty
-

INSTALLATION

General Information

This chapter provides information on physically attaching the AGILE X/TRA XLi to your Xerox printer.

Prior to Installation

The following are needed before installing the X/TRA XLi

- ▲ A Xerox DocuPrint®N17, N24, N32 or N40 Network Laser Printer
- ▲ A Centronics IEEE 1284C-compliant parallel input cable
- ▲ A ream of paper (or similar solid, flat surface)
- ▲ A phillips-head screwdriver
- ▲ Additionally, the user or someone in the user's organization should be knowledgeable about the host system.

Selecting a Location

Refer to the user's manual for your particular N-series laser printer to ensure that the printer is properly located.

Electrical Requirements

The X/TRA XLi requires 5 VDC at 500 mA provided by the printer's power source.

Users with any questions regarding the electrical service available at their site should contact a qualified electrician.

Operating Environment

The X/TRA XLi operates best within the specified temperature and relative

humidity tolerances for the particular N-series printer in which it is installed.

Unpacking

After removing the X/TRA XLi from the shipping container, inspect the unit for any damage in shipment. Immediately report any damage to the freight carrier. Save the packing container. ***Do not remove the unit from its antistatic enclosure until it is ready for installation.***

Package Contents

Except when ordered otherwise, the X/TRA XLi includes the X/TRA XLi internal protocol converter, this user's manual, and an appropriate cable, as ordered. Should any of these items be missing or damaged, contact an AGILE sales representative.

N17 Installation

The following describes and illustrates how to install the X/TRA XLi in a Xerox DocuPrint® N17 Network Laser Printer. For more information refer to the user's manual for your specific N-series printer model

Printer Preparation

- ▲ Turn the printer power off
- ▲ Disconnect the power cord and remove all cables

Opening the Printer

Use the following instructions to open the printer and refer to figure 2.1.

- ▲ Loosen the thumbscrews by turning them counter clockwise. ***Do not remove the thumbscrews.***

CAUTION: Controller boards are sensitive to static electricity. Before proceeding with the removal of your printer's controller board, discharge any static electricity from your body by touching something metal, such as the metal plate on the back of the printer. Do this BEFORE you handle the controller board.

- ▲ Remove the controller board by grasping both thumbscrews and pulling toward you with firm and even force.
-

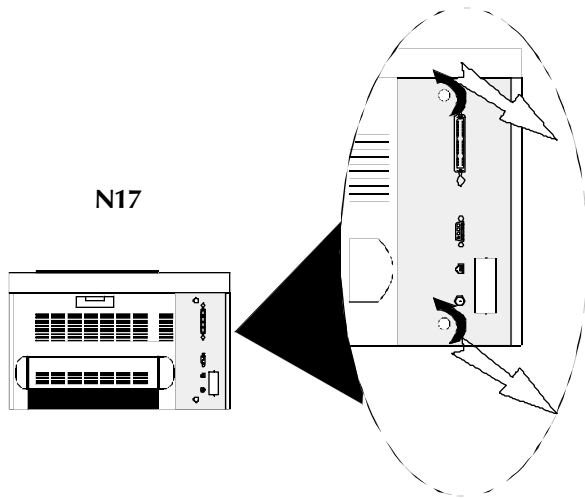


figure 2.1

Inserting the X/TRA XLI

- ▲ Locate the XNIO slot on the controller board.
 - ▲ Remove the two screws on each side of the X/TRA XLI's mounting bracket
 - ▲ With the phillips screwdriver, remove the plate covering the interface port. Do ***not discard the plate.***
 - ▲ Slide the parallel interface and interface cord of the XLI through the open interface port
 - ▲ Line up the X/TRA XLI's connector to the slot on the controller board and position the PCB in the port opening so that card is properly aligned.
 - ▲ Gently press the card straight down onto the controller board until the unit is firmly in place. (See fig. 2.2)
-

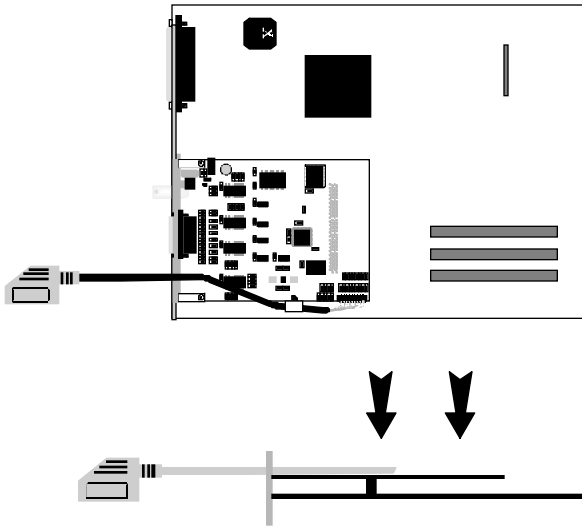


figure 2.2

CAUTION: DO NOT press the X/TRA XLI on to the controller board at an angle, or interface pins could be bent, damaging the unit and causing it to not function properly.

- ▲ Align the screw holes on the mounting bracket of the XLI with the notches on the interface port. Make sure the mounting bracket is flush with the interface port.
- ▲ Fasten mounting screws to the printer through the guiding holes on either side of the X/TRA XLI.

Returning the Printer to Operation

- ▲ Slide the controller board back into the printer, aligning the edge of the board in the guide rails
 - ▲ Push the controller board firmly into place. Make certain that there is no space between the controller board and the printer chassis. They must be flush.
 - ▲ Turn the thumbscrews clockwise to tighten. **Do not use tools to tighten, only finger pressure.**
 - ▲ Connect the X/TRA XLI parallel interface to the standard Centronics parallel connection on the printer. Lock into
-

place with wire latches.

- ▲ reconnect power cord.

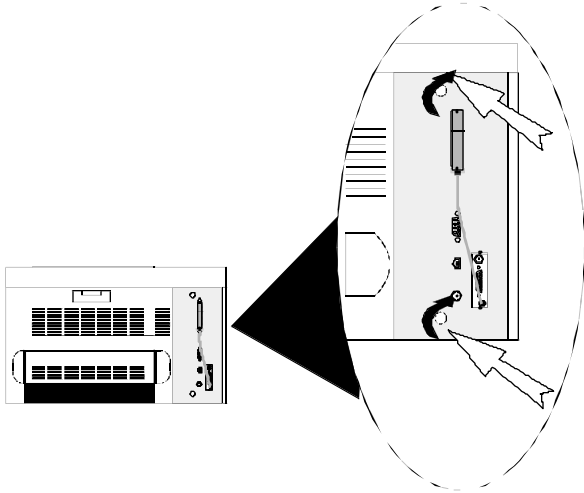


figure 2.3

N24/N32/N40 Installation

The following describes and illustrates how to install the X/TRA XLi in a Xerox DocuPrint® N24, N32 or N40 Network Laser Printer. For more information refer to the user's manual for your specific N-series printer model.

Printer Preparation

- ▲ Turn the printer power off
- ▲ Disconnect the power cord and remove all cables

Opening the Printer

- ▲ Loosen the thumbscrews by turning them counter clockwise. **Do not remove thumbscrews.**
-

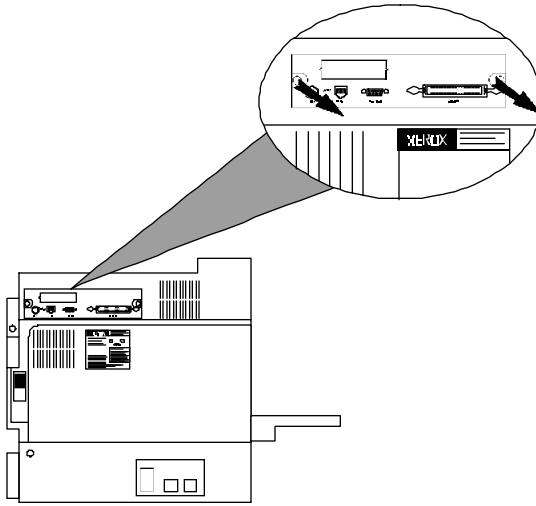


figure 2.4

CAUTION: Controller boards are sensitive to static electricity. Before proceeding with the removal of your printer's controller board, discharge any static electricity from your body by touching something metal, such as the metal plate on the back of the printer. Do this BEFORE you handle the controller board.

- ▲ Remove the controller board by grasping both thumbscrews and pulling toward you with firm and even force. Place the controller on the ream of paper.

Inserting the X/TRA XLi

- ▲ Locate the XNIO slot on the controller board.
 - ▲ Remove the two screws on each side of the X/TRA XLi's mounting bracket
 - ▲ With the phillips screwdriver, remove the plate covering the interface port. Do **not discard the plate**.
 - ▲ Slide the parallel interface and interface cord of the XLi through the open interface port
 - ▲ Line up the X/TRA XLi's connector to the slot on the controller board and slide the coax interface through the port opening so that card is properly aligned.
-

- ▲ Gently press the card straight down onto the controller board until the unit is firmly in place. (See fig. 2.5)

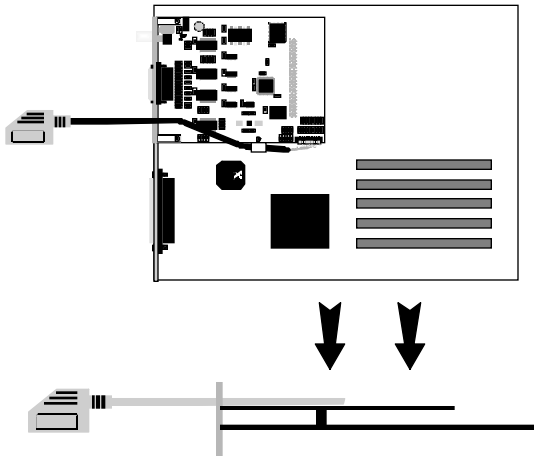


figure 2.5

CAUTION: DO NOT press the X/TRA XLi on to the controller board at an angle, or interface pins could be bent, damaging the unit and causing it to not function properly.

- ▲ Align the screw holes on the mounting bracket of the XLi with the notches on the interface port. Make sure the mounting bracket is flush with the interface port.
- ▲ Fasten mounting screws to the printer through the guiding holes on either side of the X/TRA XLi.

Returning the Printer to Operation

- ▲ Slide the controller board back into the printer, aligning the edge of the board in the guide rails
 - ▲ Push the controller board firmly into place. Make certain that there is no space between the controller board and the printer chassis. They must be flush.
 - ▲ Turn the thumbscrews clockwise to tighten. **Do not use tools to tighten, only finger pressure.**
 - ▲ Connect the X/TRA XLi parallel interface to the standard
-

Centronics parallel connection on the printer. Lock into place with wire latches.

▲ reconnect power cord.

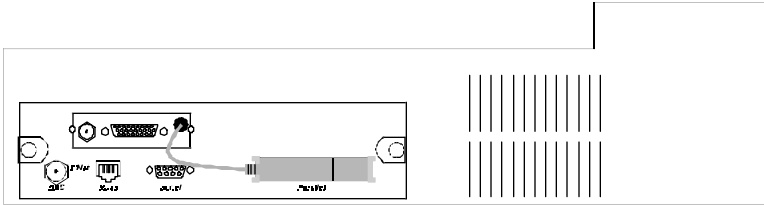


figure 2.6

Connections

The following section describes and illustrates how to make the required and optional physical connections between the X/TRA XLi and the other components of the system. Approved cables are listed in the following chart:

X/TRA XLi Connection to Parallel Input

Connect the device end of the AGILE parallel cable to the appropriate port on the parallel input source. Secure the cable using the screws provided. Then connect the X/TRA XLi end of the cable to the proper input port of the X/TRA XLi. The FCC requires all alternate host interface cables to be properly shielded.

Connection Test

After the X/TRA XLi is installed, your printer will print one status sheet upon power up. This will be your best indication that unit has been installed properly and is functioning.

This status sheet will print each time the power is cycled on the printer. If the power is turned on after the X/TRA XLi

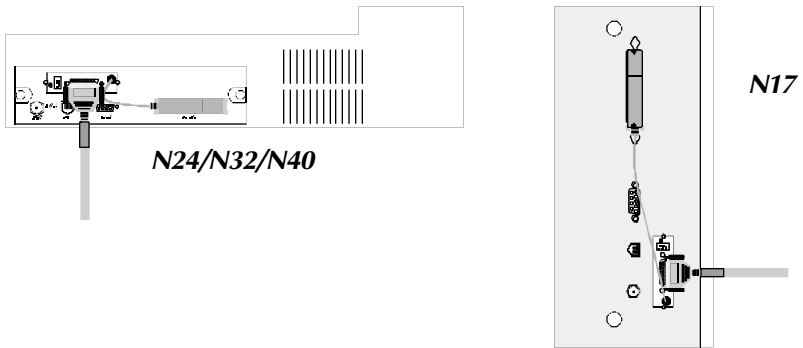


figure 2.7

Troubleshooting

If the printer does not power up properly, or if the printer does not print the proper status sheet, refer to the following checklist, or to Section 10 “Troubleshooting” of this manual. If the problem persists, contact AGILE technical support or your authorized Xerox customer support representative.

If Printer does not Start

- ▲ Make sure the power cord is attached to the printer
- ▲ Check to see that the power cord is plugged into a wall socket
- ▲ Make sure the controller board is installed properly

If the Printer does not Return a Status Sheet

- ▲ Check to see that the controller board is installed properly
 - ▲ Make sure the printer has a toner cartridge installed
 - ▲ Make sure the X/TRA XLi parallel interface is connected to the Centronics parallel port on the printer.
 - ▲ Check to see that the X/TRA XLi is securely connected to the controller board
-

INTRODUCTION TO XES

General Information

The AGILE X/TRA XLI is equipped with a high-speed translation module that accepts data streams designed for Xerox Escape Sequence (XES/UDK) printers and converts them for printing to Xerox DocuPrint N-Series Network Laser Printers.

The basic printer emulation is that of a Xerox 4213 Model II, firmware revision 2.1Y, although the X/TRA XLI also offers expanded support for some Xerox 2700, 3700, 4045, 4235 (in XDPM mode) and 4700 series printer commands as described in *Section 4 — XES Commands*.

XES emulation switching commands (=MCK=) are used to ensure that PostScript, PCL and other non-XES data is passed through without translation.

Configuration of the XES translation module in the X/TRA XLI is performed with a menu driven PC/MS DOS program (XTRAEDIT).

X/TRA XLI XES Features and Specifications

Key Benefits

- ▲ Allows XES users to print documents to N-series printers
- ▲ Users can still print PostScript and PCL data without device reconfiguration
- ▲ No added footprint
- ▲ Supports forms, vector and raster graphics
- ▲ Font storage in both portrait and landscape orientations. XES fonts can be downloaded to the printer or stored in the X/TRA XLI and are automatically converted to PCL5
- ▲ Supports international character sets and user-

specified translation tables

- ▲ Shrink mode allows printing of documents that print edge-to-edge on XES printers

Printers Supported

- ▲ Xerox DocuPrint N17, N24, N32, N40

Printer Emulation

- ▲ Xerox 4213 Model II, firmware revision 2.1Y, with some limitations and some additions

Forms and Graphics Support

- ▲ Forms downloading
- ▲ Vector graphics
- ▲ Raster graphics

Font Support

- ▲ Titan10iso
- ▲ Titan12iso
- ▲ XCP14iso

Font Storage

- ▲ 512K FLASH RAM
- ▲ Fonts are desixelized and compressed, yielding a 2:1 storage space advantage

Page Conversion Methods

- ▲ Offset method compensates for 1/4-inch upper and left margins imposed by PCL; useful for printing on forms
-

- ▲ Shrink method compensates by reducing the page up to 93.75%; signature, logo and barcode fonts can be configured not to shrink

Configuration

- ▲ PC/MS DOS menu-driven configuration program (XTRAEDIT)

Diagnostics

- ▲ Xerox Data Monitor Mode emulation
 - ▲ Configuration/Status page
-

XES COMMANDS

General Information

XES commands are used to control the functions of Xerox printers running in XES mode (also known as UDK, XDPM or 2700 mode). The X/TRA XLi interprets each supported command and converts it into the PCL5 printer language. This section lists each XES command supported by the X/TRA XLi and describes how each is implemented by the XLi for use with PCL5 printers.

XES is an acronym for Xerox Escape Sequence. It is called an escape sequence because each command in the set is preceded by an escape character. The escape character is a trigger that indicates that the data that follows it is not data to be printed but a command to be executed by the printer.

The escape character is an ASCII 1Bh (27 decimal). Some systems are unable to transmit this character directly to the printer, so the user-defined key (UDK) is provided as a substitute.

User-Defined Keys

The user may define a substitute character for the escape character if the escape character on the host does not transmit properly. The substitute escape character is known as the user-defined key, or UDK. To define a UDK, enter the following at the start of a job:

=UDK=*character*

Thereafter, until the end of the job, or until the user specifies otherwise, the printer recognizes the selected character as the escape character.

For example, to define the asterisk (*) as the UDK:

=UDK=*

Thereafter, instead of using `[Esc]+B [↵]`, enter `*+B [↵]`. Instead of using `[Esc]d`, enter `*d`.

NOTE: *the [↵] symbol indicates valid line end character(s)*



Selecting a UDK

When selecting a UDK, the trigger =UDK= must be entered in uppercase, exactly as shown. Any printable character may be used as the UDK, except:

- ▲ uppercase U
- ▲ uppercase D
- ▲ uppercase K
- ▲ comma (,)
- ▲ null (0)
- ▲ space (20h)
- ▲ equal sign (=)

The UDK selected should also be one that is not required for printing, since the UDK cannot be printed. As such, the user should not select *any* alphanumeric character. No control characters are allowed to be assigned as the UDK.

Emulation Change

The X/TRA XLi will ordinarily receive XES data and convert it to PCL5 data, so that the data stream can be sent to the printer. However, the user may also need to send PCL, PostScript or another non-XES data stream to the printer without translation. To do so, the user must first use the XES command for changing printer emulation modes. To change emulation modes, XES uses the “Mode Change Keyword” command, which takes the following format to change to PCL and PostScript emulations, respectively:

=MCK= EMULATE/PCL/END 

=MCK= EMULATE/POSTSCRIPT/END 

***Note:** The =MCK= command sequence MUST be followed by a space*



character.

It makes no difference to the XLi which emulation name follows “EMULATE.” Any emulation except for the three below will cause the XLi to enter pass-through mode. When the XLi receives one of the following commands, it will change back to XES-to-PCL5 translation:

=MCK= EMULATE/2700/END

=MCK= EMULATE/XDCS/END

=MCK= EMULATE/XES/END

A space is required immediately after the command sequence =MCK=.

An emulation change is always temporary, and will revert back to the default mode after a power off/on.

***Note:** Changing emulation modes may cause the printer to erase all downloaded fonts from memory. In such cases, the user will need to download the fonts to the printer after executing an emulation change. Alternatively, the printer can be configured with context saving enabled.*

The X/Li also supports the =MCK= commands “SAVE” and “RESTORE.” The =MCK= command “NVRAM” results in no operation.

=MCK= SAVE/END

will save the current emulation (either PCL or pass-through) to the XLi's FLASH memory until the printer is powered off.

=MCK= RESTORE/END

will change the emulation to the emulation stored using the “SAVE” command above.

=MCK= RESET/END

will change the emulation to the default power-on emulation.

XES Command Format

XES commands take the following format:

- ▲ The escape character `Esc` (1Bh or a user-defined key)
- ▲ The instruction, sometimes preceded by a plus sign (+)
- ▲ User-entered variables, if required for the command
- ▲ An optional comma (,) is used to print a Configuration/Status Page (Job Status Sheet) after a job boundary command is detected.
- ▲ An optional comment to be printed on the Configuration/Status Page
- ▲ A line end (either CR, LF, NL or CR/LF) is sometimes required

Two Types of Escape Sequences

There are two types of escape sequences:

- ▲ Job Control Commands
- ▲ Non-Job Control Commands

Job Control Commands

A job control command either sets job boundaries or formats the printed output in some way. Job control commands are used to reset the printer, start a print job, or load fonts, graphics or forms. An optional comment of up to 132 characters, if preceded by a comma, will be printed on a Configuration/Status Page upon the receipt of the next job control command. All jobs should begin and end with one or more job control commands.

A job control command always includes a plus (+) symbol following the escape character, and it always includes an instruction. It may include an



optional comma inserted when the user wants a Configuration/Status Page, an optional comment printed on the status sheet and a line end. Occasionally it includes a user-entered variable.

For example, the command to start printing a document:

[Esc] +**P**,*comment* **[↵]**

Non-Job Control Commands

Simple commands consist of the escape character and one or two other characters.

For example, the command for centering a line of text:

[Esc] **q**

Commands with user-entered variables are used to set parameters such as line spacing or margin width. They may include punctuation marks that serve as delimiters and alphanumeric characters such as comments or file names. Some require a line end.

For example, the command for setting margins:

[Esc] **m***H,T,B,L,R* **[↵]**

where *H,T,B,L,R* represent the variables for page height, top, bottom, left and right margins, respectively.

Line Endings

The symbol **[↵]** is used in these instructions to indicate a line end if the command requires a line end. However, the user must use either a carriage return, line feed, new line or carriage return/line feed as the actual line ending. The line ending must be defined as an XLi configuration parameter. Refer to *Section 5 — XTRAEDIT Configuration* for information on defining the line ending to be used.

Configuration/Status Page

Some XES commands provide for an optional Configuration/Status Page (Job Status Page) to be printed after the print job in which the command



occurs. The Configuration/Status Page is printed if the command is followed immediately by a comma (,) or if an error is detected either during the print job or during powerup.

The X/TRA XLi enables the user to determine the conditions in which a Configuration/Status Page will be printed. Refer to *Section 5 — XTRAEDIT Configuration* for information on specifying the conditions in which a Configuration/Status Page will be printed.

The Configuration/Status Page includes the following information:

- ▲ The error number and error type, if any errors were detected
- ▲ The names of any simulated, resident or downloaded fonts
- ▲ The names of any downloaded forms
- ▲ An optional comment, if one was entered
- ▲ The current configuration

A sample Configuration/Status Page can be found in *Section 6 — Service and Reference*.

Optional Comment

An optional comment will be printed on the Configuration/Status Page if a comment was entered directly after the comma in the XES command line that triggered the Configuration/Status Page. The comma is a request for printing a Configuration/Status Page. Whether or not this request is honored can be determined by setting a parameter using XTRAEDIT. The comment can be up to 132 characters in length.

The comment will always be printed by the XLi if a Configuration/Status Page is printed.

Job Boundary Commands

A job boundary is a command function that tells the printer where the job begins and ends, and it tells the printer what type of data the job contains. The command to start printing a document is the “Print Job” command. The command to end a document is the “Reset” command.

Print Job

▲ **COMMAND:** `[Esc] +P,optional comment [↵]`

▲ **RANGE:** 132 Characters for optional comment

The “Print Job” command marks a job boundary, purges the last page buffer and begins printing. Printing is allowed using only one font orientation; an orientation change causes a new job, because it is an implied job boundary.

This command will cause a Configuration/Status Page to print if: 1) an error occurs and the Configuration/Status Page switch is enabled, or 2) the previous command included a comma. An optional comment of up to 132 characters, if entered, will be printed on the Configuration/Status Page.

Print Job (Mixed Orientation)

▲ **COMMAND:** `[Esc] +Q,optional comment [↵]`

▲ **RANGE:** 132 Characters for optional comment

This command marks a job boundary, but printing is allowed using multiple font orientations.

This command is interpreted as if it were a “Print Job” command.

Reset

▲ **COMMAND:** `[Esc] +X [↵]`

▲ **RANGE:** N/A

The “Reset” command ends all types of jobs, marks a job boundary, tells the printer that any data that follows it is part of a new job, and returns the printer to its start-up state. All format parameters are reset to their default settings, and all font and form assignments are erased. If several documents are to be printed with the same parameters, the “Print Job” command should be used at the beginning of each document, but the “Reset” command should not be used.

If “Reset” is used to exit Data Monitor mode, and if Data Monitor mode was introduced with a UDK, the same UDK must be used to introduce a Reset. For example, if Data Monitor mode was introduced as follows:

=UDK=+D**





then Reset must be introduced as follows:

*+X 

Miscellaneous Commands



Print Multiple Copies (Collated)

▲ **COMMAND:**  +**C#**, *optional comment* 

▲ **RANGE:** 132 Characters for optional comment

This command currently is interpreted by the X/TRA XLi as “Print Multiple Copies, Non-Collated”.

Print Multiple Copies (Non-Collated)

▲ **COMMAND:**  +**E#**, *optional comment* 

▲ **RANGE:** 2-999

This command causes multiple copies of the document to be printed, where # is the number of copies. The number of copies may not exceed 999; if a numeral greater than 999 is entered, only one copy will be printed.

This command will cause a Configuration/Status Page to print if: 1) an error occurs and the Configuration/Status Page switch is enabled, or 2) the previous command included a comma. An optional comment of up to 132 characters, if entered, will be printed on the Configuration/Status Page.

Paper Tray

▲ **COMMAND:**  **c#** 

▲ **RANGE:** 1-3

This command selects the paper source drawer, where # is the number of the drawer (1 through A). The XLi does not support automatic tray switching.

Output Tray

▲ **COMMAND:** `[Esc] zr#`

▲ **RANGE:** 0-9

This command selects an output tray, where # is a value of 0 (top output tray) or 1-9 (high capacity stacker).

Offset

▲ **COMMAND:** `[Esc] o`

▲ **RANGE:** N/A

This command tells the printer, if it has offset stacking capability, to offset the stacking of each document. Offset can be changed on a page-by-page basis, and is controlled by the last command preceding the form feed.

Duplex Start

▲ **COMMAND:** `[Esc] zyd# [↵]`

▲ **RANGE:** 0-2,550

This command enables duplex printing for documents that will be bound on the side of the page. If a value is entered for #, the left and right margins on the second side of the page will be shifted to the left by the amount specified in 1/300" units.

The command must be entered before any printable data on the first page to be printed duplex. Duplexing is ended with the Duplex Stop command.

The XLi supports this command in both portrait and landscape orientations. The "Shift" parameter is not supported, and its use results in no operation.

Duplex Invert Start

▲ **COMMAND:** `[Esc] zyf [↵]`

▲ **RANGE:** 0-3,300

This command enables duplex printing for documents that will be bound on the top of the page. If a value is entered for #, the top and bottom



margins on the second side of the page will be shifted up by the amount specified in 1/300" units.

The command must be entered before any printable data on the first page to be printed duplex. Duplexing is ended with the Duplex Stop command.

The XLI supports this command in both portrait and landscape orientations. The “Shift” parameter is not supported, and its use results in no operation.

Duplex Stop

▲ **COMMAND:** `[Esc] zye [↵]`

▲ **RANGE:** N/A

This command ends duplexing for subsequent pages.

Duplex Side Select

▲ **COMMAND:** `[Esc] zyi#`

▲ **RANGE:** 1-2

This command selects the side of the page where the next image will be placed on a duplex page, in effect causing a form feed that allows the user to skip a page at any point in a duplex document.

Comment

▲ **COMMAND:** `[Esc] zya,comment [↵]`

▲ **RANGE:** N/A

This command enables comments to be entered into a coded document. The comments do not appear in printed output or on the status sheet.

Operator Text Message

▲ **COMMAND:** `[Esc] +H,message [↵]`

▲ **RANGE:** 132 characters for optional message

This command is used on the Xerox 4235 printer to display a message on the user interface screen and to hold printing until the “Continue” button is

pressed on the console. The XLi will neither display the message nor hold printing, but it will ensure that the message is not printed.

Font Commands

This section describes commands that affect fonts.

Font Load

▲ **COMMAND:** `[Esc] +F,comment [↵]`

▲ **RANGE:** 132 characters for optional comment

The “Font Load” command is a job boundary command that erases all previously downloaded fonts and starts downloading a new set of fonts. Up to 121 fonts may be downloaded and up to 255 stored in the XLi FLASH RAM, if font size and available memory permit. This command will also delete the current merge page from memory.

Font Unload

▲ **COMMAND:** `[Esc] +U,comment [↵]`

▲ **RANGE:** 132 characters for optional comment

The “Font Unload” command is a job boundary command that deletes all previously downloaded fonts.

Font Add

▲ **COMMAND:** `[Esc] +A,comment [↵]`

▲ **RANGE:** 132 characters for optional comment

The “Font Add” command is a job boundary command that adds fonts to those already downloaded without erasing any previously downloaded fonts. Up to 121 fonts may be downloaded and up to 255 stored in the XLi FLASH RAM, if font size and available memory permit.

Font Delete

▲ **COMMAND:** `[Esc] +B,fontname1,2,n [↵]`

▲ **RANGE:** N/A



The “Font Delete” command is a job boundary command that deletes specified fonts from those already downloaded, where *fontname* is the name of the font entered exactly as it appears on the Configuration/Status Page, and where each *fontname* is separated by a comma. This command also deletes the current merge page from memory. Printer default or system fonts cannot be deleted.

Font ID Assignment

▲ **COMMAND:** `[Esc] +#fontname [↵]`

▲ **RANGE:** 0-9

This command assigns an ID number to a font, where # is a numeral between 0 and 9, and where *fontname* is the name of the font entered exactly as it appears on the Configuration/Status Page. Once assigned, the ID number is used to call up a font in storage. This is not a job boundary.

When the user implements this command, the assigned font (resident in the XLI’s FLASH memory) is downloaded to the printer.

Font Change

▲ **COMMAND:** `[Esc] #`

▲ **RANGE:** 0-9

The “Change Font” command causes all subsequent data to be printed in the new font until a “Reset” or another “Change Font” command is received, where # is the ID of the font as assigned by the command “Font ID Assignment.”

Page Formatting Commands

This section describes the commands that control page formatting, including margins, tabs, line spacing and measurement units. Margins, tabs and page size settings are dependent upon the unit of measurement selected by the “Units” commands directly below.

Units — 1/60"

▲ **COMMAND:** `[Esc] zg`

▲ **RANGE:** N/A

This command sets the unit of measurement for the purpose of setting page size, margins and tabs to 1/60". This is the default value, but the default value can be changed using XTRAEDIT.

Units — 1/300"

▲ **COMMAND:** Esc **zf**

▲ **RANGE:** **N/A**

This command sets the unit of measurement for the purpose of setting page size, margins and tabs to 1/300". The default value is 1/60", but it can be changed using XTRAEDIT.

Margins

▲ **COMMAND:** Esc **mH,T,B,L,R** ↵

▲ **RANGE:** **See chart**

The "Margins" command is used to set page height and all margins, where:

H is the vertical size of the paper, measured from the top edge to the bottom edge of the physical page. In 1/60" units, 11.0" paper is 660. 8.5" paper is 510.

T is the top margin, measured from the top edge of the page to the baseline of the first line of text. In 1/60" units, a 2.0" margin is 120.

B is the bottom margin, measured from the bottom edge of the page to the baseline of the last line of text on the page. In 1/60" units, 1.5" bottom margin is 90.

L is the left margin, measured from the left edge of the page to the left edge of the first character in each line on the page. In 1/60" units, a 1.75" left margin is 105.

R is the right margin, measured from the left edge of the page to the right edge of the last character in each line on the page. In 1/60" units, a 1.0" right margin is 450 on a 8.5" portrait page.

Once margins have been set using this command, margin settings can be changed using the Margin Top, Bottom, Left and Right commands below.



Note: Because XES data streams may use absolute placement commands rather than page size commands, the XLi will accept ranges outside the physical area of the page. However the user should be aware that some data might be left off the printed page.

Margin Top

▲ **COMMAND:** `[Esc] zn# [↵]`

▲ **RANGE:** See *Margins* command

This command changes the setting of the top margin, measured from the top of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Margin Bottom

▲ **COMMAND:** `[Esc] zq# [↵]`

▲ **RANGE:** See *Margins* command

This command changes the setting of the bottom margin, measured from the bottom of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Margin Left

▲ **COMMAND:** `[Esc] zk# [↵]`

▲ **RANGE:** See *Margins* command

This command changes the setting of the left margin, measured from the left edge of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Margin Right

▲ **COMMAND:** `[Esc] zm# [↵]`

▲ **RANGE:** See *Margins* command

This command changes the setting of the right margin, measured from the left edge of the page, where # is the margin value expressed either in 1/60" or 1/300" units.

Tabs Horizontal

▲ **COMMAND:** `[Esc] t#1,#2...#64 [←]`

▲ **RANGE:** See *Margins* command

This command sets the horizontal tabs, where #_n is the value of the tab expressed in 1/60" or 1/300" units. As many as 64 horizontal tab values may be entered.

For example, using a 1/60" unit of measure, to set tab stops at 0.75", 3.0" and 4.5", enter:

`[Esc] t45,180,270 [←]`

The following list outlines the rules for setting horizontal tab stops:

- ▲ Default tab stops begin at 1.1" from the left side of the page and are at every 0.44" thereafter.
- ▲ Tabs may be entered in any order.
- ▲ If more than 64 tab values are entered, the excess tabs will be deleted, starting with the right most tab value.
- ▲ The maximum tab position is 815 (13.58").
- ▲ Tabs are not effective beyond margins.
- ▲ If the page orientation is changed, the tab settings must also be changed.
- ▲ Tab settings remain valid until the "Reset" or "Clear Horizontal Tabs" commands are sent.

Tabs Clear Horizontal

▲ **COMMAND:** `[Esc] d`

▲ **RANGE:** N/A

This command clears all horizontal tab settings.

Tabs Vertical

▲ **COMMAND:** `[Esc] v#1,#2,...#64 [↵]`

▲ **RANGE:** See *Margins* command

This command sets the vertical tabs where #_n is the value of the tab expressed either in 1/60" or 1/300" units. As many as 64 vertical tab values may be entered.

For example, using a 1/60" unit of measure, to set tab stops at 1.0", 1.5", 2.3" and 7.0", enter:

`[Esc] v60,90,138,420 [↵]`

The following list outlines the rules for setting vertical tab stops:

- ▲ Default tab stops in portrait orientation are every inch from the top of the page.
- ▲ Default tab stops in landscape orientation are every six lines.
- ▲ Tabs may be entered in any order.
- ▲ If more than 64 tab values are entered, the excess tabs will be deleted, starting with the bottommost tab value.
- ▲ The maximum tab position is 840 (14.0").
- ▲ If the page orientation is changed, the tab settings must also be changed.
- ▲ Tab settings remain valid until the "Reset" or "Clear Horizontal Tabs" commands are sent.

Tabs Clear Vertical

▲ **COMMAND:** `[Esc] e`

▲ **RANGE:** N/A

This command clears all vertical tab settings.

Justification Start

▲ **COMMAND:** `[Esc]j`

▲ **RANGE:** N/A

The “Start Justification” command will cause the space between words to be expanded or compressed so that each line of text will fit exactly between the left and right margins. Spaces can be expanded to 300 percent or compressed to 60 percent of their normal width. If the command is in the middle of a line, that is where justification will start, i.e., spaces before the command are not adjusted.

The user must provide line ending and hyphenation decisions when justifying text. In other words, the appearance of a line of text, when justified, may be unsatisfactory if too many or too few words occur on a line. It is the user's responsibility to insert line endings where appropriate to ensure that the appearance of the line of text is satisfactory.

Justification Stop

▲ **COMMAND:** `[Esc]k`

▲ **RANGE:** N/A

This command will end text justification. The line of text in which this command is found will be the last line justified.

Justification Unlimited

▲ **COMMAND:** `[Esc]zj`

▲ **RANGE:** N/A

The “Justification Unlimited” command (forced justification) will cause the space between words to be expanded or compressed so that each line of text will fit exactly between the left and right margins, regardless of how few characters are on the line. Spaces can be compressed to 60 percent of their normal width. Unlike the “Start Justification” command, there is no maximum distance between words. If the command is in the middle of a line, that is where justification will start, i.e., spaces before the command are not adjusted.



The user must provide line ending and hyphenation decisions when justifying text. In other words, the appearance of a line of text, when justified, may be unsatisfactory if too many or too few words occur on a line. It is the user's responsibility to insert line endings where appropriate to ensure that the appearance of the line of text is satisfactory.

Center

▲ **COMMAND:** `Esc q`

▲ **RANGE:** N/A

Receipt of this command anywhere within a line of text will center that line between the left and right margins. If the line is too long to be printed within the margins, it will extend equally into the left and right margins.

Line Spacing

▲ **COMMAND:** `Esc i#`

▲ **RANGE:** 0-4

This command sets the line spacing, where # is a numeral between 0 and 4.

▲ 0 = single spacing

▲ 1 = 1.5 line spacing

▲ 2 = double spacing

▲ 3 = triple spacing

▲ 4 = 0.5 line spacing

Line spacing rules:

▲ If a line spacing command is found in the middle of the line, the new spacing begins with the next line.

- ▲ The largest font on the line determines spacing (to avoid overstriking the previous line).
- ▲ When 0.5 line spacing is used, the previous line may be overstruck.

Line Spacing Absolute

▲ **COMMAND:** ip#

▲ **RANGE:** N/A

This command adjusts the amount of space between lines of text, where # is a numeral expressed in 1/300". Unlike "Line Spacing," in which the amount of space between lines is based upon the font size, "Line Spacing Absolute" sets line spacing pixel by pixel. The command takes effect on the line after which it occurs.

Note: The printer will always print at least one line of text per page regardless of the value of this parameter.

Character Spacing Absolute

▲ **COMMAND:** qzs#C

▲ **RANGE:** N/A

This command adjusts the amount of space between characters of text, where # is a numeral expressed in 1/300", and where C is the character to be spaced. Normally, the amount of space between characters is based upon the font. "Character Spacing Absolute" sets character kerning pixel by pixel.

For example, to space the characters A, B and C 0.75" apart from one another on a line, enter:

zs225ABC

This command will remain in effect until another zs#C command is entered. To return to font-based spacing, enter any negative number for the # parameter, or use +X (Reset).



Forms Creation Commands

This section describes the commands used in the creation of forms. The unit of measure in forms creation commands is always 1/300", regardless of the setting determined by the "Units" commands `[Esc]zf` and `[Esc]zg`.

Some of the commands in this section are dependent upon the orientation of the page and its point of origin. The following illustrations show the differences between portrait and landscape orientations. Note that the x coordinate is always the shorter page dimension, and the y coordinate is always the longer page dimension. In portrait orientation, the origin is at the lower left corner of the page. In landscape orientation, the origin is at the top left corner of the page.

Note: Unlike XES printers, page orientation must first be set correctly for the XLi to use these commands.

Baseline Placement Absolute

▲ **COMMAND:** `[Esc]za#1,#2[←]text[←]`

▲ **RANGE:** See Below

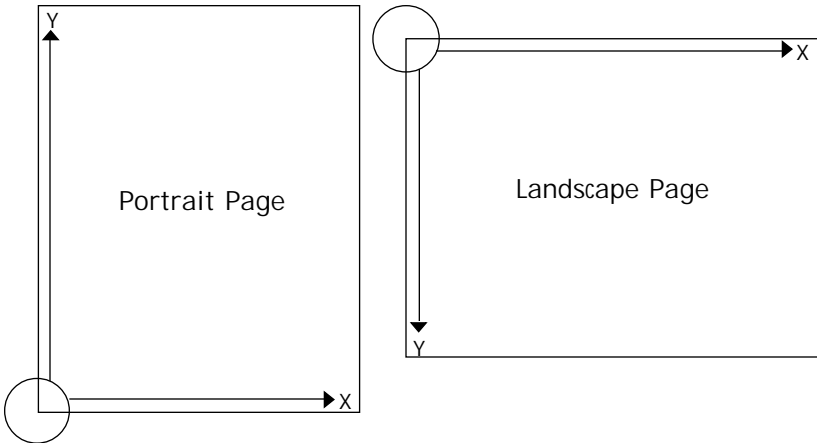
This command places the baseline of any character of text in any specified location on the page relative to the page origin, where #₁ is the x (short edge) coordinate and #₂ is the y (long edge) coordinate. If using a portrait font, this command is identical to "Text Placement Absolute." If using a landscape font, this command uses the bottom left corner of the character cell as the origin.

Text Placement Absolute

▲ **COMMAND:** `[Esc]a#1,#2[←]text[←]`

▲ **RANGE:** See Below

This command will place text anywhere on the page relative to the page origin, where #₁ is the x (short edge) coordinate and #₂ is the y (long edge)



coordinate. If using a landscape font, this command uses the top left corner of the character cell as the origin.

For example, to place text on a landscape orientation page 1.0" to the right of the origin and 2.5" down from the origin, use the following command:

```
[Esc] a300,750 [←] text [←]
```

Text Placement Relative

▲ **COMMAND:** `[Esc] rC1#C2`

▲ **RANGE:** See Below

This command will place text anywhere on the page relative to the current print position, where # is the distance in 1/300" that the text is to be moved, where C₂ is any printable, non-numeric character or a space (this acts as a command terminator and is not printed), and where C₁ is one of the following alphabetic characters:

- ▲ **u** for up
 - ▲ **d** for down
 - ▲ **l** for left
 - ▲ **r** for right
-

Line Draw (X or Y)

▲ **COMMAND:** `[Esc] x(or y)X,Y,L,W,S [↵]`

▲ **RANGE:** **See Below**

To draw a line parallel to the x (short edge) axis, enter:

`[Esc] xX,Y,L,W,S [↵]`

To draw a line parallel to the y (long edge) axis, enter:

`[Esc] yX,Y,L,W,S [↵]`

where *X* and *Y* specify the starting point of the line, where *L* is the length of the line expressed in dots, where *W* is the width of the line expressed in dots (with a value between 1 and 31), and where *S* is the line shading (any value between 0 and 15 is accepted, where 15 is solid black).

For example, if the user would like to draw a line on a portrait orientation page, parallel to the y axis, that starts 1.75" over from the x origin and 0.25" up from the y origin, and that is 6.0" long and 1/50" wide:

`[Esc] y525,75,1800,6 [↵]`

The page orientation is determined by the first font on the page, so be certain to specify a font before using this command.

To draw a line on a landscape orientation page, parallel to the x axis, that starts 5.0" down from the x origin and 1.5" over from the y origin, and that is 4.0" long and 1/100" wide:

`[Esc] x1500,150,1200,3 [↵]`

Document Enhancement Commands

This section describes the commands for bolding, underlining, overstriking, subscripting and superscripting text.

Bold Start

▲ **COMMAND:** `[Esc] b`

▲ **RANGE:** **N/A**

This command begins bolding for every character printed subsequently. A bold effect is produced by printing every character twice, with the second character moved slightly to the right. This command requires extra page composition formatting and should be used with moderation; bold fonts are preferred when a lot of bold text is needed.

Bold Stop

▲ **COMMAND:** `[Esc] p`

▲ **RANGE:** N/A

This command ends bolding.

Overstrike Start

▲ **COMMAND:** `[Esc] zoC`

▲ **RANGE:** N/A

The “Start Overstriking” command will cause one character to be printed over another character, where *C* is the character to be used for overstriking. Overstriking continues until the command to cancel it is received. This command requires extra page composition and should be used with moderation.

Overstrike Stop

▲ **COMMAND:** `[Esc] zp`

▲ **RANGE:** N/A

This command or a “Font Change” command will stop overstriking.

Subscript Start

▲ **COMMAND:** `[Esc] l`

▲ **RANGE:** N/A

The “Start Subscripting” command lowers the baseline of subsequent characters. When using a smaller font for the subscripted text, the user

must call the font after the subscript command, because the distance that the baseline is lowered is determined by the font in use. This command cannot be used to further lower text that is already subscripted. If underlining and subscript are to be used together, refer to the “Start Underlining” command for information on how the two commands interact.

Superscript Start

▲ **COMMAND:** `[Esc] h`

▲ **RANGE:** N/A

The “Start Superscripting” command raises the baseline of subsequent characters. When using a smaller font for the superscripted text, the user must call the font after the superscript command, because the distance that the baseline is raised is determined by the font in use. This command cannot be used to further raise text that is already superscripted. If underlining and superscript are to be used together, refer to the “Start Underlining” command for information on how the two commands interact.

Sub/Superscript Stop

▲ **COMMAND:** `[Esc] s`

▲ **RANGE:** N/A

This command will stop either superscripting or subscripting. Superscripting and subscripting will also be stopped upon receipt of carriage control characters CR, LF or FF.

Underline Start

▲ **COMMAND:** `[Esc] u`

▲ **RANGE:** N/A

The “Start Underlining” command causes all subsequent characters, including tabs and spaces, to be underlined until a “Stop Underlining” command is received. The thickness of the underline is determined by the size of the last font in use at the end of the line.



The underline position is not changed by a “Start Subscripting” or “Start Superscripting” command. If the user would like the underline to follow a subscript down or follow a superscript up, the original underline command must be stopped, and a new “Start Underline” command must be entered after the subscript or superscript command. This procedure will establish a new baseline position for the underline.

Underline Stop

▲ **COMMAND:** Esc **w**

▲ **RANGE:** **N/A**

This command will stop underlining.

Merge Page Load

▲ **COMMAND:** Esc **+M** ↵

▲ **RANGE:** **N/A**

The “Merge Page Load” command is a job boundary command that erases any previously stored page and stores a new page to be merged with other pages. A separate command enables the merging of this page with another to produce a composite page. This command must be used after using either the “Font Load” command or the “Font Delete” command, because either of those commands will delete the current merge page from memory.

Merge Page Unload

▲ **COMMAND:** Esc **+V** ↵

▲ **RANGE:** **N/A**

The “Merge Page Unload” command is a job boundary command that erases any previously stored merge page.

Form ID Assignment

▲ **COMMAND:** Esc **+#formname.FRM** ↵

▲ **RANGE:** **0-9**



This command assigns a number to one of up to ten forms which can then be recalled for merging into a variable document, where # is the number (0-9) to be assigned and *formname*.FRM is the name of the form to which the number is being assigned. This command is placed anywhere on the variable page after the Print Job command and before the first Form Merge Start command.

Form Merge Start

▲ **COMMAND:** `[Esc]zb#`

▲ **RANGE:** 0-9

This command invokes a form with an assigned identification number for merging with a text document, where # is the form ID number.

Cycleforms

▲ **COMMAND:** `[Esc]zxform1,form2...form64 [↵]`

▲ **RANGE:** 1-64

This command enables repeated merging of a set of forms at specified intervals in a job consisting of multiple variable pages, where *form₁*, *form₂* and *form_n* are the names of the forms as they are stored on disk. The commas are used not only to separate form names, but can also be used to indicate any variable pages in which merging is not to occur. This command is placed after the Print Job command in the first series of variable pages to be merged.

Form Merge Stop

▲ **COMMAND:** `[Esc]zh#`

▲ **RANGE:** 0-9

This command stops the merging of a form with a variable page, where # is the number (0-9) of the form to be stopped.

Page Merge Start

▲ **COMMAND:** `[Esc]ze`

▲ **RANGE:** N/A

This command will cause the page in which it occurs and all subsequent pages to merge with a page stored in memory. Merging continues until either a “Page Merge Stop” or a Reset” command is received.

Page Merge Stop

▲ **COMMAND:** **zd**

▲ **RANGE:** N/A

This command will allow the page in which it occurs to merge, but all subsequent pages will not be merged with a page stored in memory.

Graphic Window

▲ **COMMAND:** **gwM(M/M),I,R,name/F;X,Y,S_xS_y**

▲ **RANGE:** See Below

This command defines an area on the page for graphics, where:

M is the degree of magnification. If only one value for *M* is entered, the magnification is proportional. If two values are entered, the magnification will be different for the *x* and *y* directions. 0 or 1 will result in no magnification, 2 will double the magnification, and 4 will quadruple the magnification.

I indicates the type of graphics the window will contain, and whether the graphics will be printed reversed. 0 indicates raster data, 1 indicates reversed raster data, 2 indicates vector or macro data, and 3 indicates reversed vector or macro data.

R indicates the degree of rotation, if any, of the graphic window. 0 specifies no rotation, 1 specifies 90° counterclockwise rotation, 2 specifies 180° counterclockwise rotation, and 3 specifies 270° counterclockwise rotation.

name is the name of the window (up to seven characters).

/F is replaced with */s* for storage only, or with */p* for storage and printing.

X, *Y* are the coordinates for the origin of the graphic window.



S_x , S_y indicate the size of the graphic window, measured in 1/300" from the origin of the graphic window.

Fields prior to the semicolon are optional, although blank fields must still be separated by a comma. Fields after the semicolon are required.

This command may be placed anywhere in a document where graphics are desired.

Graphic Delete

▲ **COMMAND:** `[Esc] +B,optional comment [Enter]`
`graphicname.GRA [Enter]`

▲ **RANGE:** 132 characters for optional comment

This command will delete graphic files from FLASH storage. Fonts and forms may also be deleted with this command.

Graphic Window Repeat

▲ **COMMAND:** `[Esc] grM(Mx/My),I,R,,name/F;X,Y,Xn,Yn [Enter]`

▲ **RANGE:** See Below

This command copies a graphic window and places it on the page, where:

M is the degree of magnification. If only one value for M is entered, the magnification is proportional. If two values are entered, the magnification will be different for the x and y directions. 0 or 1 will result in no magnification, 2 will double the magnification, and 4 will quadruple the magnification.

I indicates the type of graphics the window will contain, and whether the graphics will be printed reversed. 0 indicates raster data, 1 indicates reversed raster data, 2 indicates vector or macro data, and 3 indicates reversed vector or macro data.

R indicates the degree of rotation, if any, of the graphic window. 0 specifies no rotation, 1 specifies 90° counterclockwise rotation, 2 specifies 180° counterclockwise rotation, and 3 specifies 270° counterclockwise

rotation.

name is the name of the window (up to seven characters).

/F is replaced with */s* for storage only, or with */p* for storage and printing.

X, *Y* are the coordinates for the origin of the duplicate window.

X_n , Y_n are the coordinates of other duplicate windows if more than one is to be made on the page.

Fields prior to the semicolon are optional, although blank fields must still be separated by a comma. Fields after the semicolon are required.

This command may be placed anywhere in a document where graphics are desired.

Graphic Line

▲ **COMMAND:** `[Esc] glT;X1,Y1,X2,Y2,Xn,Yn [↵]`

▲ **RANGE:** **T=1-15**

This command draws lines between any two points within a graphic window, where:

T is the thickness of the line. Value should be an odd number

X_1 , Y_1 are the coordinates of the first point in the line.

X_2 , Y_2 are the coordinates of the first segment endpoint.

X_n , Y_n are the coordinates of the next segment endpoint.

Graphic Arc

▲ **COMMAND:** `[Esc] gaT;X,Y,r,S2,E2,Sn,En [↵]`

▲ **RANGE:** **See Below**

This command draws arcs and circles within a graphic window, where:

T is the thickness of the line in pixels (no more than one-half the size of r)

X, Y are the coordinates of the center of the arc.

r is the radius of the arc.

S_2 is the starting point of the arc expressed in degrees.

E_2 is the endpoint of the arc expressed in degrees.

S_n, E_n are additional pairs of starting and ending points, as required.

Where degrees are expressed, 0 degrees is at 3 o'clock, and rotation occurs in a counterclockwise direction.

Graphic Box

▲ **COMMAND:** `[Esc] gbT;X1,Y1,X2,Y2 [←]`

▲ **RANGE:** See Below

This command draws a rectangle by defining two sets of right angles that form diagonal corners of the rectangle within a graphic window, where:

T is the thickness of the line in pixels.

X_1, Y_1 are the coordinates of the origin of the graphic box as measured from the top left corner of the graphic window.

X_2, Y_2 are the coordinates of the opposite diagonal corner of the graphic box.

Graphic Pie Chart

▲ **COMMAND:** `[Esc] gfT;X,Y,r,%1/F1/On,%n/Fn/On [←]`

▲ **RANGE:** See Below

This command creates a complete pie chart, including fill patterns. It can also offset single slices from the rest of the pie chart.

T is the thickness of the line.

X, Y are the coordinates of the center of the pie chart as measured in pixels from the origin of the graphic window.



r is the radius of the pie chart.

$\%_1$ is the percentage of the pie to be taken up by the first pie slice.

$/F_1$ is the number of the fill pattern selection for the first pie slice.

$/O_1$ is the offset of the first pie slice measured in pixels from the center of the pie, if the slice is to be offset.

$\%_n/F_n/O_n$ are the parameters of all other slices in the pie.

Character Reassignment

▲ **COMMAND:** Esc +T ↵
datarecord ↵

▲ **RANGE:** N/A

This command transmits new character assignments from the host to the XLI. The table can then be accessed with the Language command.

Load Translation Table

▲ **COMMAND:** Esc zt

▲ **RANGE:** N/A

This command is identical to Character Reassignment except that it is not a job boundary command.

Language

▲ **COMMAND:** Esc zI# ↵

▲ **RANGE:** See Below

This command switches the printer from the current character table to another character table, where # is the number of the table selected.

- 0 U.S. English
 - 1 U.K. English
 - 2 French
-



- 3 Dutch
- 4 Spanish
- 5 Italian
- 6 Danish
- 7 Norwegian
- 8 Finnish
- 9 German
- A Swedish
- B Belgian
- C French Canadian
- D Portuguese
- E Latin American
- F The Default Language
- G The Special Table (3274)
- H User-defined Table

Belgian and Portuguese are EBCDIC tables and are not supported by the X/TRA XLI. It will use The Default Table instead. The XLI supports language tables only for ISO character set fonts. Fonts that do not support the ISO character set will not be remapped based upon language and will always use their built-in character set.

The fonts built in to Xerox printers that are simulated by the XLI do not support the ISO character set and therefore do not support language selection. If the user needs language support for these fonts, the user must either download or install in the XLI's flash memory the real versions of these fonts using XTRAEDIT. Language is supported only if Character Set is set to ASCII.

Data Monitor

▲ **COMMAND:** Esc +D

▲ **RANGE:** N/A

This command prints the hexadecimal codes representing all characters received by the printer. This allows the user to analyze data being sent from the host. Data Monitor Mode must be exited with the Reset command.

Control Codes

In the ASCII coding scheme, all bytes with values less than 20h represent control functions. The following table describes the control codes.

Code Name	ASCII Value	Control Code Description
BEL	07	Bell — The X/TRA XLi will send a BELL character to the printer
BS	08	Backspace — Causes the printer to move the print position one space to the left, only if it is the first code in the print line
HT	09	Horizontal Tab — Causes the print position to be moved horizontally to a predetermined location on the page. If there is no tab stop set to the right of the current position, a space is performed
LF	25	Line Feed — Forces the print position to be moved down one line-height. The code may be used as a valid line-ending code, performing both the carriage return and line feed functions, as well as a command terminator.
VT	0B	Vertical Tab — Causes the print position to be moved vertically to a predetermined location on the page
FF	0C	Form Feed — Causes the printer to eject the current page and begin a new page. This occurs only if a printable character has been placed on the page
CR	0D	Carriage Return — Causes the printer to return to the first print position of the current line. It may also be used as a valid line ending, performing both the carriage return and the line feed functions.
ESC	1B	Escape — This character gives subsequent codes different meanings.

XTRAEDIT CONFIGURATION

General Information

XTRAEDIT is a menu-driven, MS/PC DOS-based utility that enables users to change the default configuration of the XLI. XLI. Configuration changes made with this software will be saved in the XLI's permanent, nonvolatile storage, even when power has been disconnected from the unit.

Getting Started

Loading XTRAEDIT

Start by connecting the XLI to the host system and to the printer as described in *Section 2 — Installation*. Then load and run XTRAEDIT, the XLI configuration software. If the user's 3.5" high-density disk drive has a letter designation other than B, or if the user is running the software after installing it on a hard drive, substitute the appropriate letter and subdirectory name for B in these instructions.

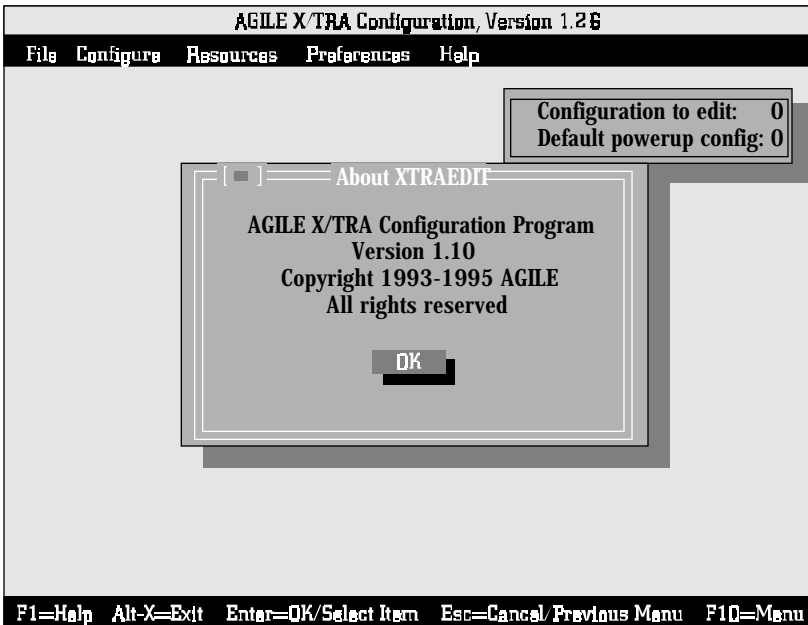
At the B:> prompt, type: XTRAEDIT[enter]

About XTRAEDIT

After a few seconds, the XTRAEDIT program will load, and the "About XTRAEDIT" screen will appear.

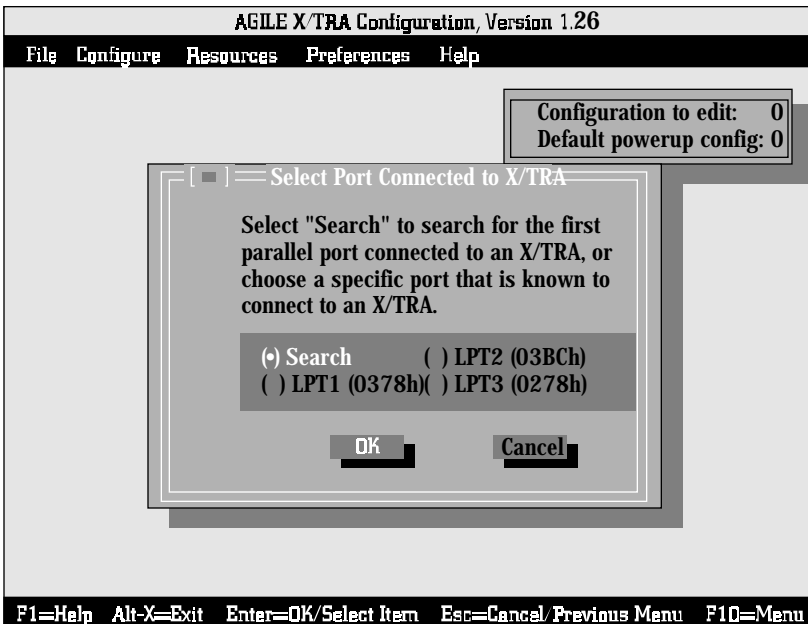
After reading the information presented, mouse users can clear this dialog box by pressing the left mouse button after moving the mouse pointer either to *OK* or to the *Close* button in the upper left corner of the dialog box. Keyboard users can close this dialog box either by pressing s to close or d to accept *OK* (the highlighted choice).

This screen also can be displayed by the user at any time during configuration by selecting *About*, found under the *Help* menu. When selected from the *Help* menu, this dialog box will also provide users with information about the amount of remaining memory available in the user's computer.



Select Port

Next, the user will see the following screen:





This dialog box enables the user to indicate to which parallel port the XLI to be configured is connected, either *LPT1*, *LPT2* or *LPT3*. If the user is uncertain as to which port the XLI is connected, the user can select *Search*, and the program will find the port. If there is more than one XLI connected to the computer, the user must indicate which one is to be configured. The *Search* choice will find the XLI connected to the lowest numbered port.

Mouse users can simply move the mouse pointer to the appropriate choice and press the left mouse button, then move the mouse pointer to *OK* and press the left mouse button. Select *Cancel* or click on the *Close* button to exit without making any changes.

Keyboard users can use the arrow keys *h* to move among the choices, and *t* will enable the user to highlight either *OK* or *Cancel* and to select one or the other by pressing *d*.

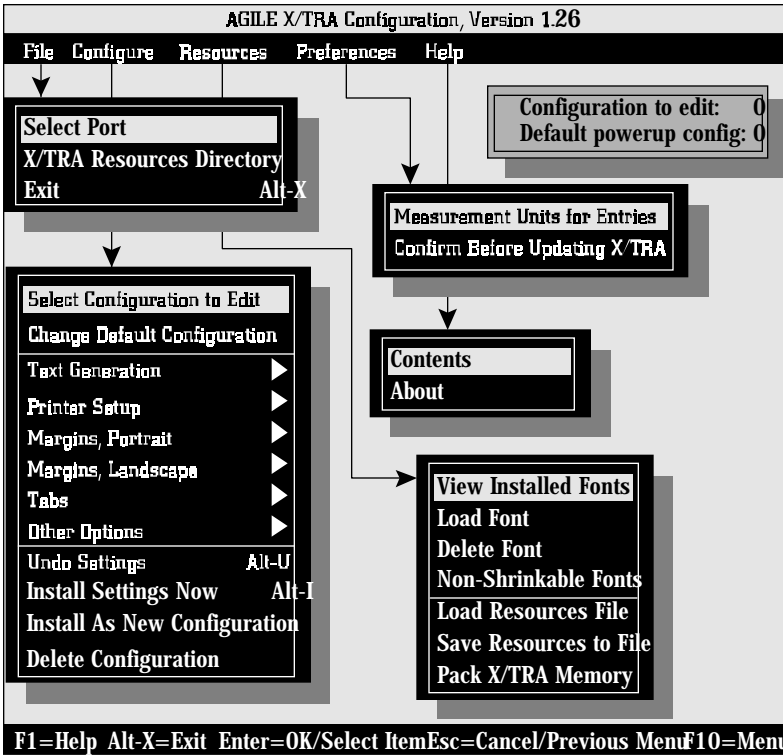
An error message will be displayed if the XLI is either powered down or disconnected from the designated port. The error must be corrected before configuration can continue.

After the port has been selected, XTRAEDIT will automatically put the XLI into Mode F — Configuration Mode. After exiting XTRAEDIT, the XLI will automatically perform a power-on Reset and return to Mode 0 — Normal Operating Mode.

XTRAEDIT Main Screen

After selecting the appropriate port, the program will display the main screen of XTRAEDIT. Users can navigate through the menus and other choices in XTRAEDIT either with a mouse or with keyboard commands. Using a mouse, standard graphical user interface elements, such as pull-down menus, can be activated by moving the mouse pointer to the choice and pressing the left mouse button to select it.

The following diagram shows the choices available from the main menu bar of XTRAEDIT:



Keyboard Commands




F10=Menu

With the keyboard, the user can access the menu bar by pressing the 0 function key. The specific menu can then be chosen by using the arrow keys to highlight its name. Then, the *Enter* key or the down arrow key can be used to accept the highlighted choice and to display its submenu names.


Alternatively, menus can be accessed by holding down the *Alternate* key and pressing the letter highlighted in the menu bar (e.g., I-F for the *File* menu):

File Menu	Alt	F
Configure Menu	Alt	C
Resources Menu	Alt	R
Preferences Menu	Alt	P
Help Menu	Alt	H




To move from the highlighted menu name to a specific submenu, use the arrow keys   to highlight the submenu name, then press the *Enter* key  to accept the highlighted choice. Alternatively, the user can type the highlighted letter of the submenu name to access the submenu.


Esc=Cancel/Previous Menu

The *Escape* key  can be used at any time to cancel the current selection or to exit a menu or dialog box.


Enter=OK/Select Item

The *Enter* key  is used to select the item that is currently highlighted on the screen, whether it is a menu name or an option in a dialog box.






Alt-X=Exit

The XTRAEDIT configuration program can be exited from the main screen by holding down the *Alternate* key  and pressing X.

F1=Help





Context sensitive help is available at any time by pressing the  function key.

Arrow and Tab Keys

The arrow keys     and  can be used to move among various choices in the dialog boxes.

Other Keyboard Commands

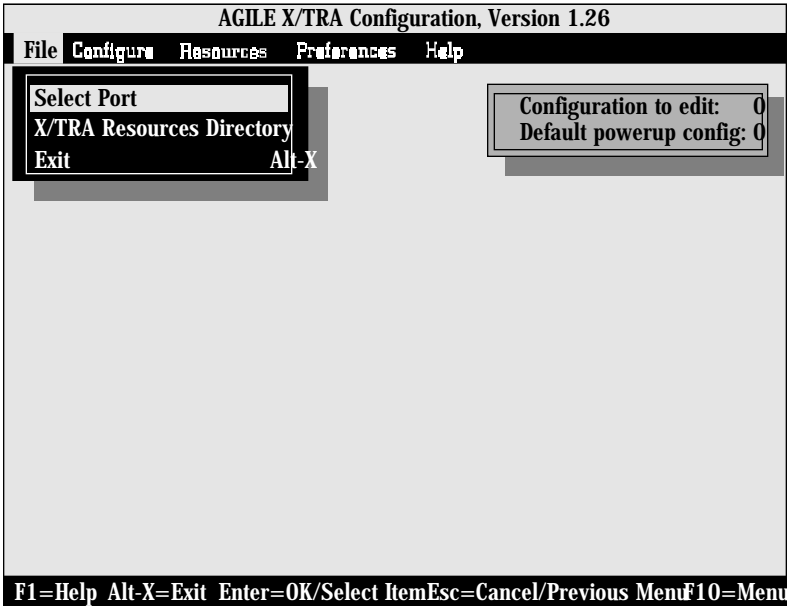
The following keyboard commands are also available from the XTRAEDIT main screen:

Current XLI Resources Directory	 D
Install Settings Now	 I
Computer Memory Available	 M
Undo Settings	 U



File Menu

This menu contains the options *Select Port*, *XLI Resources Directory* and *Exit*.



Select Port

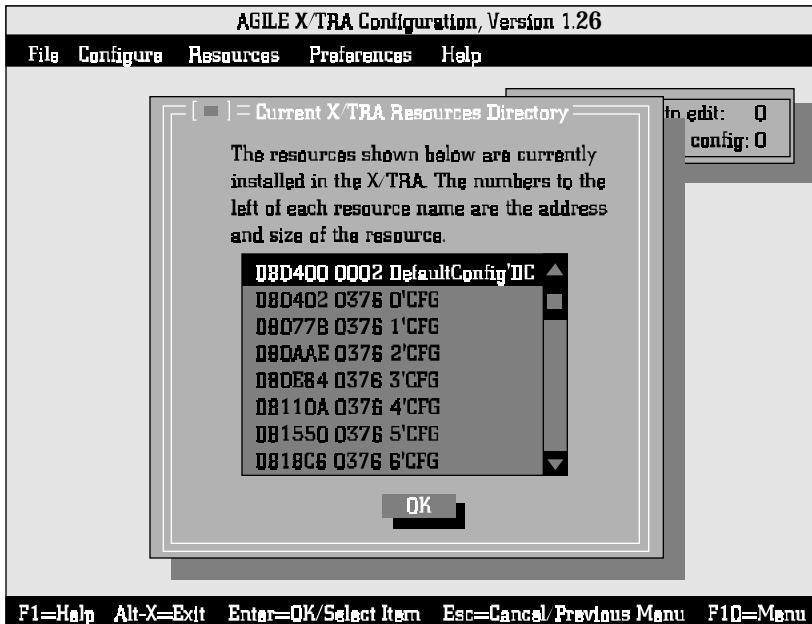
This option performs the same function as the port selection screen that was displayed when the user first loaded the program. It enables the user to choose the parallel port to which the XLI to be configured is attached, either *LPT1*, *LPT2* or *LPT3*. The default is *LPT1*.

XLI Resources Directory


The *XLI Resources Directory* will list resources currently installed in the XLI, including the XLI operational software (the XLI code), up to ten configurations and as many fonts as the available memory will store. It will also display in hexadecimal notation the XLI memory in bytes that each resource consumes, and the location in memory where each resource resides.

This option is normally used only when the user has been asked by the Xerox Product Support Centre to report the contents of the directory.

The following illustration shows the default resources directory screen:

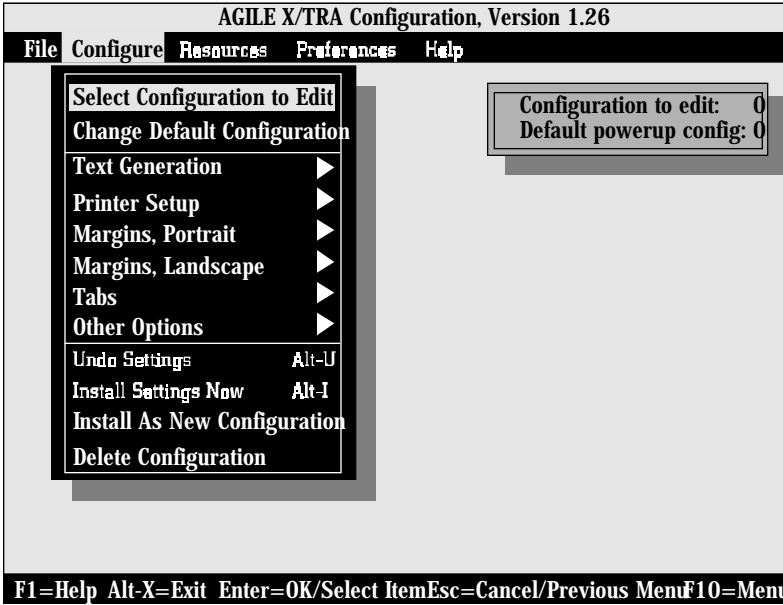


Exit — Alt-X

The user can select this option to exit the XTRAEDIT software program. XTRAEDIT also can be exited from the XTRAEDIT main screen simply by holding down the *Alternate* key  and pressing *X*.

Configure Menu

This menu contains the options *Select Configuration to Edit*, *Change Default Configuration*, *Text Generation*, *Printer Setup*, *Margins Portrait*, *Margins Landscape*, *Tabs* and *Other Options*, and it includes the commands *Undo Settings*, *Install Settings Now*, *Install As New Configuration*, and *Delete Configuration*.



Select Configuration to Edit

To perform the configuration procedure, the user must first select the configuration to be modified. *Select Configuration* enables this selection by displaying a dialog box wherein the user can choose the number of the configuration to be edited. The number selected is constantly displayed in the box in the upper right corner of the screen next to *Configuration to edit*.

The XLI can store up to ten configurations. Each configuration can be defined and later invoked (using the XES Page Format Select command) for a specific type of print job.

The XLI is shipped with eight configurations. Each consists of the options listed as defaults in this section. The difference between each of them consists primarily of each of the possible combinations of the following three variables, as indicated in the chart that follows:

1. Size Correction (*Shrink or Offset*)
2. Page Orientation (*Portrait or Landscape*)
3. Emulation Mode (*XES or Passthrough*)

Configuration	Size Correction	Orientation	Emulation
0	Shrink	Portrait	XES Mode
1	Shrink	Landscape	XES Mode
2	Offset	Portrait	XES Mode
3	Offset	Landscape	XES Mode
4	Shrink	Portrait	Passthrough
5	Shrink	Landscape	Passthrough
6	Offset	Portrait	Passthrough
7	Offset	Landscape	Passthrough

Page orientation implies the following set of parameters in the default configuration (discussed later in this section):

Orientation	Portrait	Landscape
Font Selection	Titan10iso-P	XCP14iso-L
Page Length	3300	2550
Top Margin	200	120
Bottom Margin	200	120
Left Margin	120	200
Right Margin	2430	3100
Top Margin, 2nd Page	200	120
Bottom Margin, 2nd Page	200	120
Left Margin, 2nd Page	120	200
Right Margin, 2nd Page	2430	3100
Horizontal Tabs	17 set	23 set
Vertical Tabs	15 set	11 set

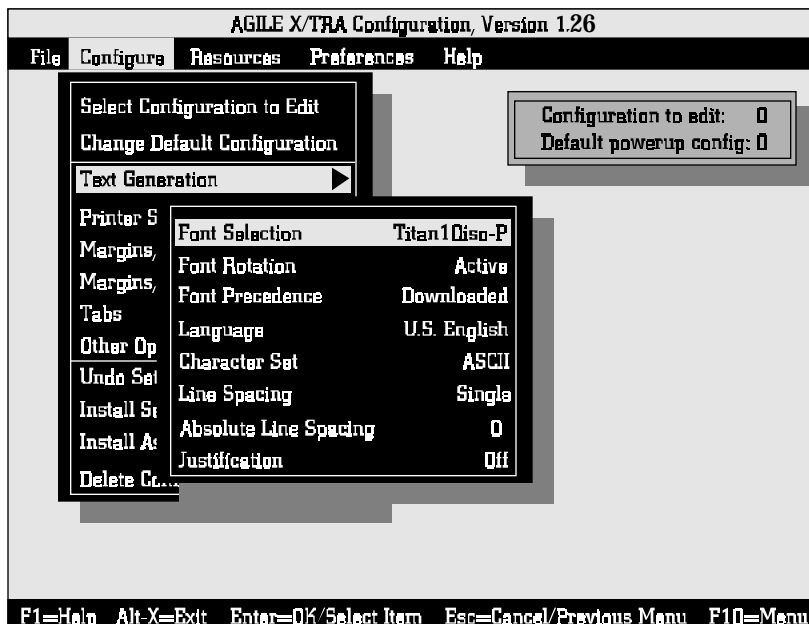
In addition, all configurations have *Top Offset* and *Left Offset* settings of -75. Finally, all configurations have *Job Sheet* settings of *Power/Error*, with the error level set to *Parse*.

Change Default Configuration

From among the ten possible configurations, the user can select one to use as the default, or powerup, configuration. The default is Configuration 0, but the user can choose any configuration from 0-9. The number selected is constantly displayed in the box in the upper right corner of the screen next to *Default powerup config.:*

Text Generation

Text Generation options include *Font Selection*, *Font Rotation*, *Language*, *Character Set*, *Line Spacing*, *Absolute Line Spacing* and *Justification*, as indicated in the following illustration:



Font Selection

Font Selection is used to select the default font from among those installed in or native to the XLI. The default font for configurations with a portrait orientation is *Titan10iso-P*. The default font for configurations with a landscape orientation is *XCP14iso-L*.

The font selected here will be the font used by the printer until an XES Font Change command is received by the XLI.

Font Rotation

Font Rotation gives users the option of activating a feature that allows a font installed in one orientation (portrait or landscape) to be available for printing in both orientations. This option is *Active* by default.

Language

Language is used to select the language used by the printer (*U.S. English* is the default). The user also can choose *U.K. English, French, Dutch, Spanish, Italian, Danish, Norwegian, Finnish, German, Swedish, French Canadian* and *Latin American*. These ASCII character sets, and the ISO character set, can be found listed in other reference documentation.

These choices are equivalent to those available on the Xerox 4213 Model II printer, with the exception of *Belgian* and *Portuguese*, which are EBCDIC fonts. EBCDIC is not supported by the XLI.

Character Set

Character Set options include *ASCII, ISO* and *PC*. The default is *ASCII*.

These choices are equivalent to those available by setting dip switches on the Xerox 4045-160 printer.

Line Spacing

Line Spacing provides the choices of *Absolute, Half, Single, 1 1/2, Double, 2 1/2* or *Triple*. *Single* spacing is the default.

This option is equivalent to the XES Line Spacing command.

Absolute Line Spacing

Absolute Line Spacing is used to specify a value for spacing when *Absolute* has been selected under *Line Spacing*. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default is *0*.

This option is equivalent to the XES Line Spacing Absolute command.

Justification

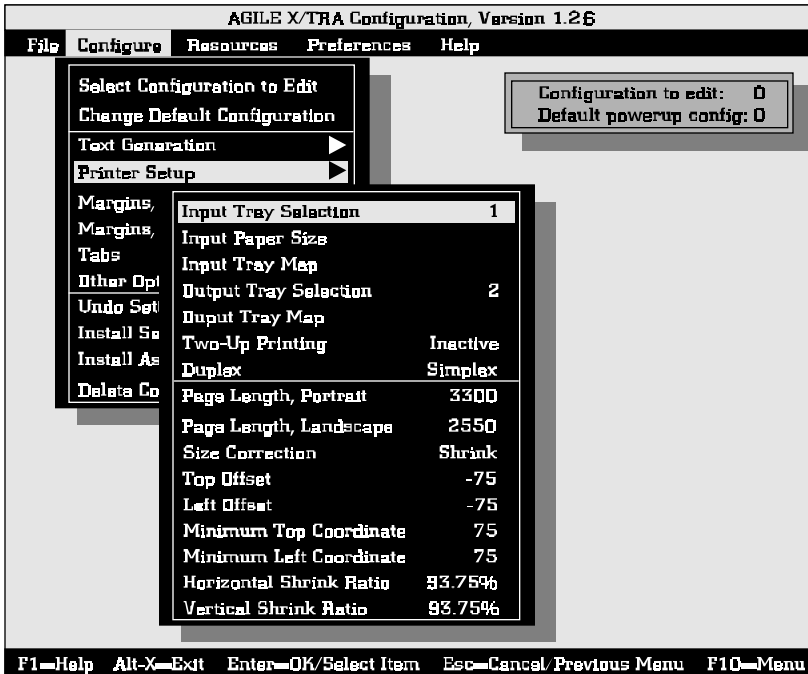
Justification choices are *Off, Normal* and *Forced*. The default is *Off*.

The *Forced* option is equivalent to the XES Justification Unlimited command, *Normal* is equivalent to the Justification Start command, and *Off* is equivalent to the Justification Stop command.



Printer Setup

This menu enables the user to specify choices about the printer, including *Input Tray Selection*, *Input Paper Size*, *Input Tray Map*, *Output Tray Selection*, *Output Tray Map*, *Two-Up Printing*, *Duplex*, *Page Length Portrait*, *Page Length Landscape*, *Size Correction*, *Top Offset*, *Left Offset*, *Minimum Top Coordinate* and *Minimum Left Coordinate*. This illustration displays these choices:



Input Tray Selection

The *Input Tray Selection* is used to select the default input tray (0-A). The default is 1.

This option is equivalent to the XES Paper Tray command.

Input Paper Size

The *Input Paper Selection* is used to choose a paper size for each input tray (0-A). The default is *Letter* for each tray. To change the paper size selection, first choose the tray number for which the paper size is to be changed. A dialog box will then be displayed with the choices *Letter*,

Executive, Folio, Legal, Ledger, A6, A5, A4, A3 and envelope sizes *Monarch, Com10, Intl DL, Intl C5* and *Intl B5*. Choose the paper size appropriate for each tray. Each paper size designation is displayed with its measurement.

Input Tray Map

The *Input Tray Selection* is used to match the XES input tray number (0-A) to the PCL5 input tray number. For example:

The XES command for tray selection is `[Esc]c#`, where # is the input tray number (0-A). The PCL5 command for tray selection is `s&1#H`, where # is the input tray number. The following chart illustrates how tray mapping could function if the user has replaced a Xerox 4213 printer (running in XES mode) with a Xerox 4500 printer (running in PCL5 mode). The PCL5# is the value sent to the 4500 in the PCL5 source paper drawer select command.

XES #	4213 Tray(s)	PCL5 #
0	HCF, 1, 2	5
1	1 (upper)	1
2	2 (lower)	3
3	HCF	5
4	1	1
5	1, 2	1
6	HCF, 2	5
7	HCF, 1	5
8	n/a	4
9	Bypass	2
A	n/a	4

Output Tray Selection

The *Output Tray Selection* chooses the default output tray (1 or 2). The default value is 1.

This option is equivalent to the XES Output Tray command.

Output Tray Map

The *Output Tray Selection* is used to match the XES output tray number (1-2) to the PCL5 output tray number.



Two-up Printing

The XLI does not support the XES Margins Double Page command used for printing two logical pages on one physical page. The XES command referred to is: `[Esc] m<H,T,B,L,R>,m<T,B,L,R>[←]`.

Two logical pages on one physical page may be accomplished with the XLI by following the procedure below:

- 1) Set the margins for the size of the first logical page.
- 2) Print the text for the first page. DO NOT EXCEED the margins or physical size of the paper.
- 3) Set the margins for the second logical page.
- 4) Absolute text placement to the print position of the first character of the second two-up page.
- 5) Print the text for the second page.
- 6) Form Feed to the next physical page or side.

NOTE: The margin settings for a second page in XTRAEDIT are not supported and have no effect.

To test the procedure, enter the following source code.

Source Code

```

=UDK=~
~X
=UDK=~
~m480,10,10,10,335
Line 1 Page 1
Line 2 Page 1
Line 3 Page 1
Line 4 Page 1
Line 5 Page 1
Line 6 Page 1
▼ ▼
Line 47 Page 1
Line 48 Page 1
Line 49 Page 1
Line 50 Page 1

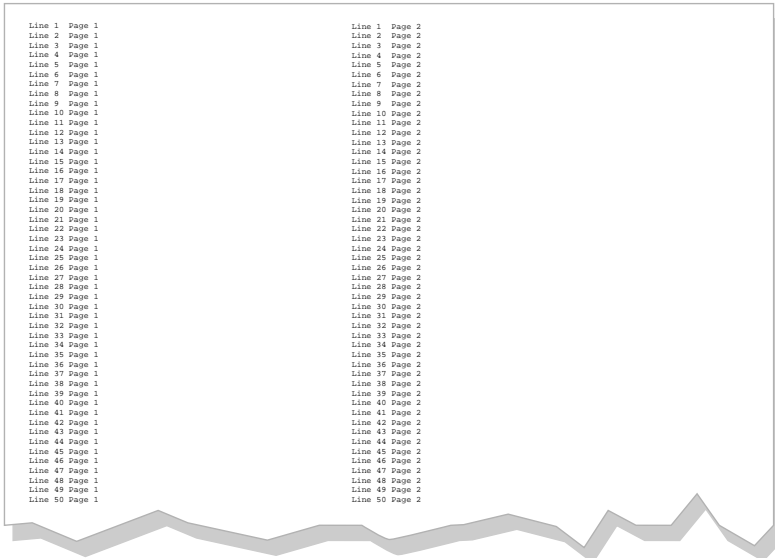
~m480,10,10,355,690
~a50,1775
Line 1 Page 2
Line 2 Page 2
Line 3 Page 2
▼ ▼
Line 47 Page 2
Line 48 Page 2
Line 49 Page 2
Line 50 Page 2

~X

```



The resulting output should look like this:



Duplex

Duplex gives the user the options of *Simplex* printing, *Side-to-Side* duplex printing or *Head-to-Toe* duplex printing. The default value is *Simplex*.

Simplex is equivalent to the XES Duplex Stop command, *Side-to-Side* is equivalent to the Duplex Start command, and *Head-to-Toe* is equivalent to the Duplex Invert Start command.

Page Length (Portrait, Landscape)

Page Length enables the user to specify a page length between 0 and 14 inches. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *1.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *300* and *4200*. In 1/60 inches, the user can enter an integer value between *60* and *840*. The default value for portrait is *3300* (300ths inch). The default for landscape is *2550*.

The *Page Length* option is equivalent to the *H* parameter of the XES Margins and Margins Double Page commands.

Size Correction

Size Correction accounts for the difference in printable area between XES and PCL5 printers. XES printers can print to the edge of the page, while PCL5 printers can print only to within about 1/4 inch of the page edge. Further, the page origin on a PCL5 printer is 1/4 inch down and to the right from the top left corner, whereas an XES printer page origin is at the top left corner. To correct for these differences between the two printer types, the user can choose between *None*, *Offset*, *Auto Offset* and *Shrink*. The default configurations have values of *Shrink* or *Offset*.

None will print the XES document to the PCL5 printer without compensating for the differences in origin or printable area. Because of the difference in page origins, the output will start 1/4 inch down and to the right from where it would print on an XES printer. This selection ensures that no text is lost or clipped at the upper and left edges of the page, but text may be lost or clipped at the bottom and right edges. Further, because of the difference in positioning on the page, this choice is inappropriate for printing on preprinted forms. It is useful, however, for those PCL5 printers that can print to the edge of the page.

Offset corrects for the differences in page origins. If selected by the user, negative values entered under *Top Offset* and *Left Offset* (below) will shift the printed output on the page up and to the left by the amount specified. If set to -1/4 inch, the user can ensure that the effective page origin is the same as that of an XES printer. However, if the document sends text to the edges of the page, this text will be lost or clipped. This choice is appropriate for printing on preprinted forms if the XES document does not use the outside 1/4 inch of the page.

Shrink will reduce the vertical and horizontal distance between the origins of all text characters on the page to 93.75%. This is the amount necessary to fit all output on the page, even if the document prints edge-to-edge on an XES printer. This choice will ensure that no characters are lost or clipped, but it is unsuitable for printing on preprinted forms. The effective page origin is 1/4 inch down and to the right of the upper left corner of the page.

Top Offset

Top Offset specifies the amount of shift if *Offset* is selected (or active because of the *Auto Offset* algorithm) under *Size Correction*. Negative values move printed output up; positive values move printed output down. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the

Preferences menu. If inches, the user can enter a value between -1.000 and 1.000 . In 1/300 inches, the user can enter an integer value between -300 and 300 . In 1/60 inches, the user can enter an integer value between -60 and 60 . The default value is -75 (300ths inch).

Left Offset

Left Offset specifies the amount of shift if *Offset* is selected (or active because of the *Auto Offset* algorithm) under *Size Correction*. Negative values move printed output left; positive values move printed output right. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between -1.000 and 1.000 . In 1/300 inches, the user can enter an integer value between -300 and 300 . In 1/60 inches, the user can enter an integer value between -60 and 60 . The default value is -75 (300ths inch).

Minimum Top Coordinate

The *Minimum Top Coordinate* setting is used if *Auto Offset* has been selected under *Size Correction* in the *Printer Setup* menu. The XLI uses this value to determine if the origin of the first character is in the printable area of the page. The value entered by the user should normally be 1/4 inch, since this is the area at the top of the page that cannot be addressed by PCL5 printers. The default is 75 (300th inch). This value may need to be increased if the origin of the character is within the printable area, but the height of the character is such that the character is clipped when printed.

The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between 0.000 and 14.000 . In 1/300 inches, the user can enter an integer value between 0 and 4200 . In 1/60 inches, the user can enter an integer value between 0 and 840 .

Minimum Left Coordinate

The *Minimum Left Coordinate* setting is used if *Auto Offset* has been selected under *Size Correction* in the *Printer Setup* menu. The XLI uses this value to determine if the origin of the first character is in the printable area of the page. The value entered by the user should normally be 1/4 inch, since this is the area on the left edge of the page that cannot be addressed by PCL5 printers.

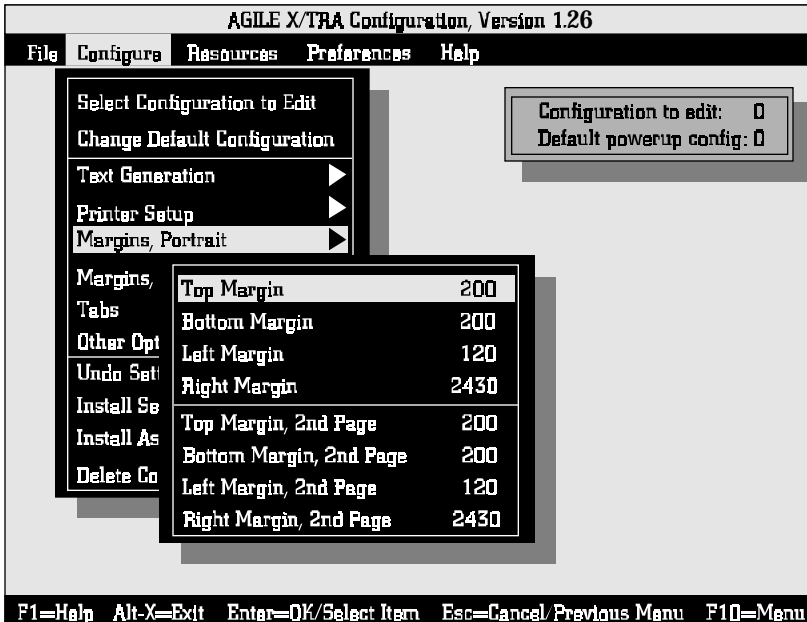


Margins (Portrait, Landscape)

These settings determine the area of the page in which characters can be printed. The menu choices are indicated in the following illustration:

Top Margin

The *Top Margin* setting determines the number of inches from the top edge of the page to the baseline (origin) of the first line of text. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *200* (300ths inch); the default value for landscape pages is *120* (300ths inch).



Bottom Margin

The *Bottom Margin* setting determines the number of inches from the bottom edge of the page to the baseline (origin) of the last line of text. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *200* (300ths inch); the default value for landscape pages is *120* (300ths inch).

Left Margin

The *Left Margin* setting determines the number of inches from the left edge of the page to the left edge (origin) of the first character in each line on the page. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *120* (300ths inch); the default value for landscape pages is *200* (300ths inch).

Right Margin

The *Right Margin* setting determines the number of inches from the left edge of the page to the right edge of the last character in each line on the page. The value can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between *0.000* and *14.000*. In 1/300 inches, the user can enter an integer value between *0* and *4200*. In 1/60 inches, the user can enter an integer value between *0* and *840*. The default value for portrait pages is *2430* (300ths inch); the default value for landscape pages is *3100* (300ths inch).

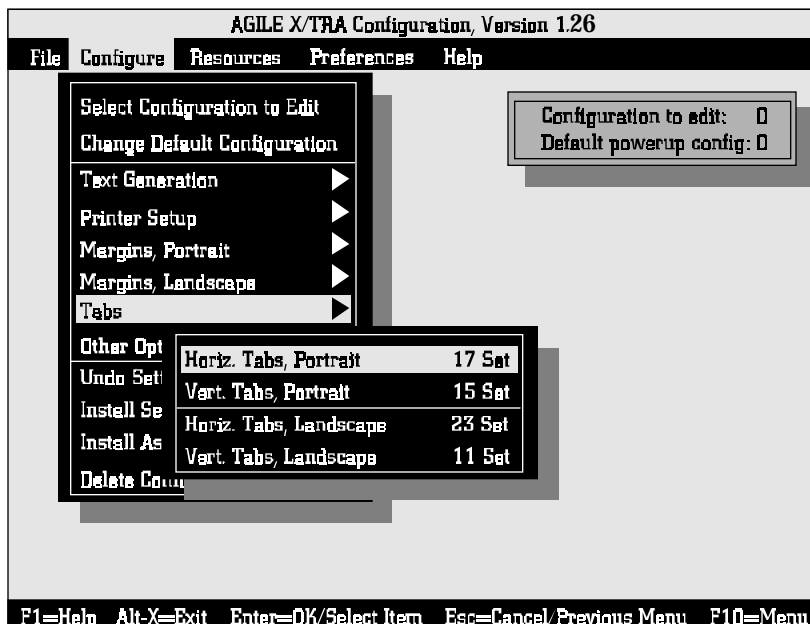
Tabs (Portrait, Landscape)

The *Tabs* menu enables the user to set *Horizontal Tabs* and *Vertical Tabs* for both portrait and landscape pages, as indicated by the illustration below. These options are equivalent to the XES *Tabs Horizontal* and *Tabs Vertical* commands, respectively.

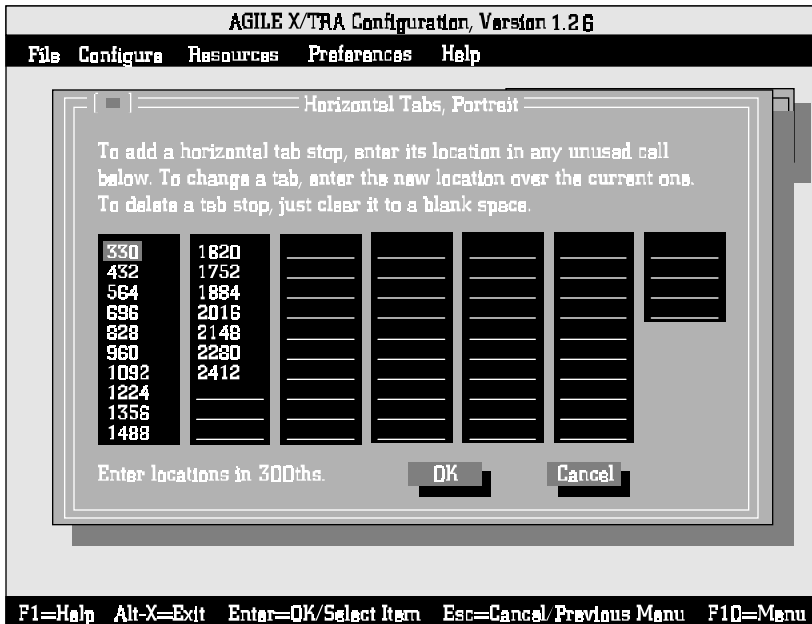
Selecting any of the four tab setting choices will cause XTRAEDIT to display the following dialog box (the *Horizontal Tabs, Portrait* dialog box is illustrated):



To enter a new tab value, mouse users can move the mouse pointer to any of the fields indicated by underscore characters, press the left mouse button, and then type the value of the tab location. Keyboard users can use t, u or n to move to any of these fields, then type the value of the tab location.



Up to 64 values can be entered, in any order. Duplicate entries are automatically reconciled, and XTRAEDIT will automatically place the entries in their correct order.



Values can be entered in inches, 1/300 inches or 1/60 inches, depending upon the setting of *Measurement Setting for Entries* under the *Preferences* menu. If inches, the user can enter a value between 0.000 and 14.000. In 1/300 inches, the user can enter an integer value between 0 and 4200. In 1/60 inches, the user can enter an integer value between 0 and 840.

Delete tab settings by highlighting the value to be deleted, then press v or x. After entering and/or deleting values, use the mouse or t to select *OK*, or press d to accept the choices.

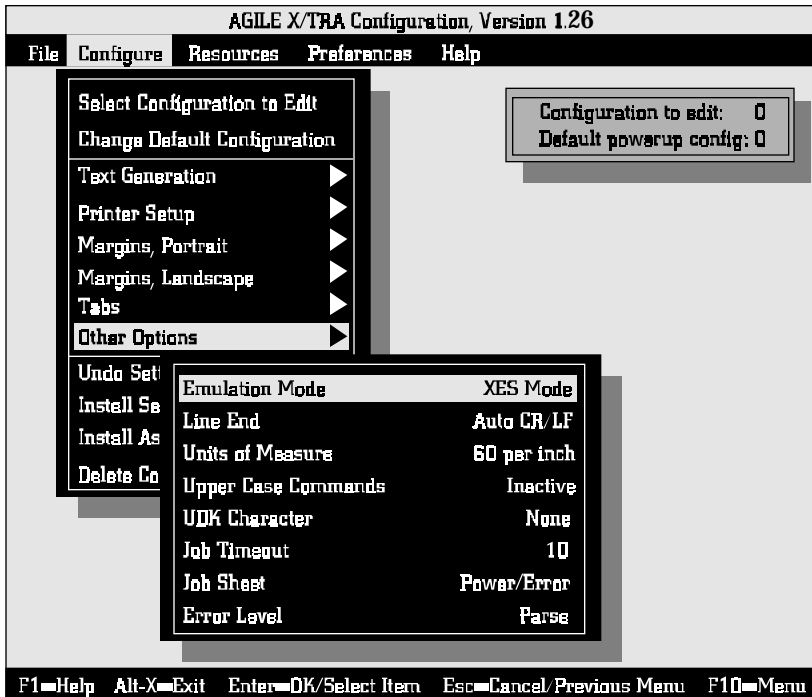
The following chart show the default portrait and landscape tabs stops:



Portrait		Landscape	
Horizontal	Vertical	Horizontal	Vertical
330	330	330	330
432	540	432	540
564	750	564	750
696	960	696	960
828	1170	828	1170
960	1380	960	1380
1092	1590	1092	1590
1224	1800	1224	1800
1356	2010	1356	2010
1488	2220	1588	2220
1620	2430	1620	2430
1752	2640	1752	
1884	2850	1884	
2016	3060	2016	
2148	3270	2148	
2280		2280	
2412		2412	
		2544	
		2676	
		2808	
		2840	
		3072	
		3204	

Other Options

This submenu enables the user to change the settings for the following options: *Emulation Mode*, *Line End*, *Units of Measure*, *Uppercase Commands*, *UDK Character*, *Job Timeout*, *Job Sheet* and *Error Level*. These options are shown in the following illustration:



Emulation Mode

This option enables the user to set the configuration either to *XES Mode* or to *Passthrough Mode*. *XES Mode* is the normal operating mode of the XLI, enabling XES documents to be printed to the user's PCL5 printer. *Passthrough Mode* enables the user to print other document types, including PCL5 documents, and PostScript documents if the user's printer supports PostScript.

The emulation mode being used will be indicated by the XLI LED, either *0* for *XES Mode* (normal operating mode), or *P* for *Passthrough Mode*. The default is XES Mode for Configurations 0, 1, 2 and 3. The default for Configurations 4, 5, 6 and 7 is *Passthrough Mode*.

Line End

XES protocol requires that certain printer commands are terminated with a line ending, either a carriage return only (CR), a line feed only (LF) or both (CR/LF). The type of line ending is defined by the user. This option enables the user to indicate to the XLI which type of line ending is being used in the user's XES documents to terminate XES commands.

The user can select CR/LF, *CR only*, *LF only* or *Auto CR/LF*. *Auto CR/LF* is the default, and it tells the XLI to accept any line ending as an XES command terminator.

Units of Measure

This option is equivalent to the Units—1/60 or Units—1/300 XES commands. It is used to indicate whether measurements within XES commands in the user's documents are stated in 1/60-inch units or 1/300-inch units. The user can choose *60 per inch* or *300 per inch*. The default is *300 per inch*.

Note: This setting is not related to the setting in *Measurement Units for Entries* under the *Preferences* menu. *Measurement Units for Entries* is used only for measurement units entered within XTRAEDIT.

Uppercase Commands

Normally, XES commands are case sensitive, i.e., they must be entered in upper case or lower case, depending upon the command format. This option, when set to *Active*, enables the user to enter all XES commands in upper case letters. This is the default. When set to *Inactive*, XES commands must be entered according to normal XES protocol.

UDK Character

XES commands may begin with the s character, or the user can define a substitute character with which to begin XES commands. This is useful if the system is not capable of transmitting the s character. In this dialog box, enter the character that initiates XES commands in the user's documents.

To define the substitute s character, simply type in a printable, non-alphanumeric character. If the entered character is unacceptable, an error message will be displayed. The default value is *None*, which means that only the s character can be used to begin XES commands.

Job Timeout

The timeout period defined by the user will determine how long the XLI will wait for data before it assumes a job boundary and ejects the current page from the printer. The user may enter a value between 2 and 600 seconds.

Note: XLI must have a smaller timeout setting than the timeout setting for the printer (about two seconds shorter). If the printer times out before the XLI, in some cases the last page will not be printed correctly.

Job Sheet

The *Job Sheet* option determines under which conditions the XLI will print a Configuration/Status Page. The choices are *None*, *Always* and all of the possible combinations of *Error*, *Request* and *Power Up*. The default for all configurations is *Power/Error*.

If the user selects *None*, the Configuration/Status Page will not be printed under any conditions, except when the user selects *Mode C* using the *Mode Selector* button on the top panel of the XLI. If the user selects *Always*, the Configuration/Status Page will be printed upon power up, when requested within a document, when an error condition occurs, and when the user selects *Mode C*. The other choices restrict the printing of the Configuration/Status Page to a smaller set of conditions.

Error Level

This option is used in conjunction with the *Job Sheet* option. It is used to determine which level of error qualifies as an error for the purpose of printing a Configuration/Status Page. It also determines, when a Configuration/Status Page is printed, which errors are reported on the page. The default choice is *Parse*. The user can also choose among *Critical*, *Fatal*, *Implementation* and *Superficial*.

If the user chooses *Fatal*, the only errors reported will be those that prevent the document from being printed. *Critical* errors are those will cause the document to print incorrectly, such as missing fonts or forms. *Parse* errors are those caused by incorrect or incomplete XES commands. *Implementation* errors are due to the XLI implementation of XES commands. *Superficial* errors are those that will not affect printed output. Each choice is inclusive of the choice(s) above it.

Undo Settings — Alt-U

Changes to the configuration of the XLI are not installed (saved in the XLI's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands. *Undo Settings* is a command that will cancel all changes to the configuration of the XLI that were made since the previous installation of XLI configuration settings.

This command will not undo *Font* menu commands such as *Load Font*, *Delete Font*, *Pack XLI Memory* and *Non-Shrinkable Fonts*, nor will it undo the *Delete Configuration* command. These commands write information to the XLI memory immediately.

Install Settings Now — Alt-I

Changes to the configuration of the XLI are not installed (saved in the XLI's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands. Use this command to save any changes to the current configuration.



This command will not affect the *Delete Configuration* command or *Font* menu commands such as *Load Font*, *Delete Font*, *Pack XLI Memory* and *Non-Shrinkable Fonts*. These commands write information to the XLI memory immediately.

Install As New Configuration

Changes to the configuration of the XLI are not installed (saved in the XLI's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands.

Use this command to save changes to the current configuration as a different configuration. When this option is selected, a dialog box is displayed that enables the user to install configuration changes to a different configuration number. Enter any digit between 0 and 9.

This command is useful for creating two configurations with only minor differences. The user can use the *Select Configuration* option to select a configuration, make a few changes and then use this command to save the edited configuration under a different number.

This command will not affect the *Delete Configuration* command or *Font* menu commands such as *Load Font*, *Delete Font*, *Pack XLI Memory* and *Non-Shrinkable Fonts*. These commands write information to the XLI memory immediately.

Delete Configuration

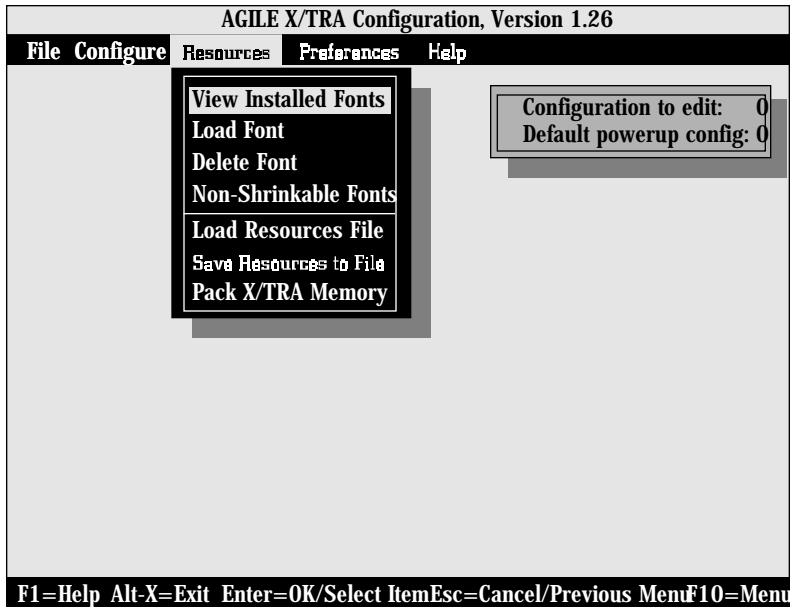
The user can free up space in the XLI's flash memory by removing from memory any configurations that are not being used. The user can choose any configuration from 0-9. When the confirmation dialog box is displayed, select *Yes* to continue.

Resources Menu

This menu contains the options *View Installed Fonts*, *Load Font*, *Delete Font*, *Non-Shrinkable Fonts*, *Load Resources File*, *Save Resources to File* and *Pack XLI Memory*.

The XLI has approximately 448K of font storage space in its nonvolatile flash memory, depending upon the size of other XLI resources, such as configurations.

Fonts can be used by selecting them with an XES Font Change command. Fonts can be selected from among simulated fonts that have been downloaded to the printer, or fonts that have been stored in flash memory.



View Installed Fonts

View Installed Fonts will display a list of all fonts that the user has installed in the XLI's flash memory. Users can display font names for which there is insufficient room on the screen by using the arrow keys un.

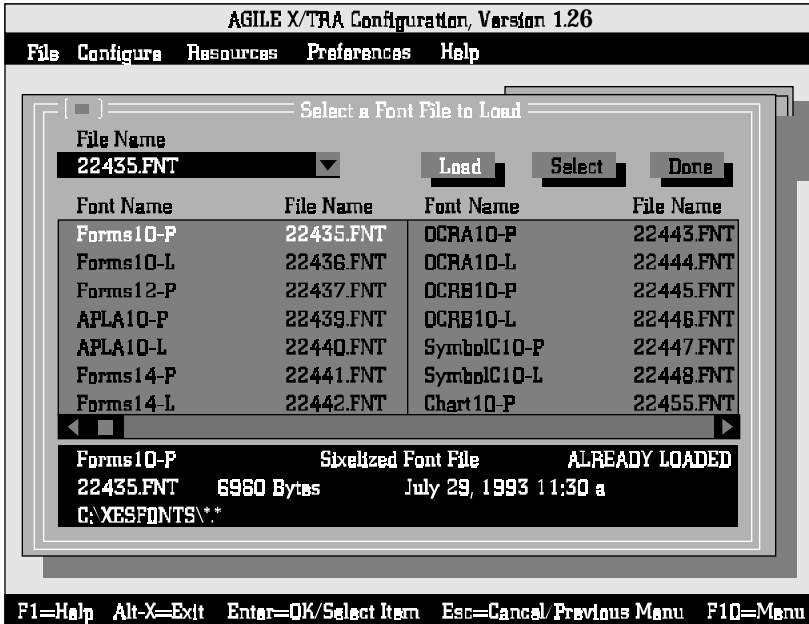
Load Font

Load Font will display a dialog box that will allow the user to load fonts from a diskette to the XLI's flash memory. Loading a font is equivalent to having a font on a cartridge installed in a Xerox 4045-160 printer, with the advantage that the user can choose which fonts are present. Fonts installed in the XLI's flash memory, unlike fonts downloaded to the printer, are stored permanently, even when power has been disconnected from the unit. To conserve space, all installed fonts are desixelized and compressed.

Note: To obtain XES fonts on a diskette, contact the Xerox Font Centre at (800) 445-FONT.



The *Load Font* dialog box is represented with the following illustration:



This dialog box has two areas in which users can enter data, in addition to the *Load* and *Done* buttons. Mouse users can navigate between these four items by moving the mouse pointer to the appropriate item and pressing the left mouse button. Keyboard users can use *t* to select the appropriate item.

The first step in loading a font is to select the *File Name* box in the upper left corner of the dialog box. Here, the user can enter the letter of the disk drive in which the user's fonts reside by typing the letter of the drive followed by a colon, e.g., *C:*. The default drive is *B:*. The user can also type the entire path, including subdirectory names and the file name, in this box, but the following method may be more convenient:

Once the user has selected the appropriate disk drive in the *File Name* box, the subdirectory and file name can be selected in the *Font Name/ File Name* box in the center of the screen. Mouse users can do this by pointing and clicking, and keyboard users can do this using the arrow keys *unhk*. When the desired font name is highlighted, press *d*, or select *Load*, and the file will be loaded to the *XLI*.

After loading all fonts to be stored in the XLI, select the *Done* button to return to the main screen. If the user selects a font for which there is insufficient flash memory, an error message will be displayed.

The lowest box on the screen displays information about the currently highlighted font. This information includes the directory/subdirectory in which the font resides, the name of the font, the name of the file, the size of the file in bytes and its creation/modification date. This box will also indicate the format of the file, i.e., whether the file is binary, sixelized or in another format, and whether or not the font has already been loaded in the XLI memory.

Delete Font

Delete Font will display a dialog box that will enable the user to remove from the XLI's flash memory any fonts that the user has installed. Simply highlight the name of the font to be deleted, using the mouse or the arrow keys un, then select *Delete* or press d. When the confirmation dialog box is displayed, select Yes to continue.

Non-Shrinkable Fonts

This dialog box enables the user to list all of the installed, downloaded or printer-resident fonts that will print incorrectly due to space compression caused by using the *Shrink* algorithm. Listing the fonts here will prevent these fonts from having space removed between characters when *Shrink* has been selected for *Size Correction* under *Printer Setup* in the *Configuration* menu. Fonts that may be distorted by shrinking include bar codes, logos and signatures.

Use the mouse or t to highlight the field in which to enter the font name. Enter the name of the font exactly, including upper and lower case letters, as appropriate. If using both portrait and landscape orientations of a font, both names must be entered separately, even if only one has been installed in the XLI (because the user has set *Font Rotation* to *Active* under *Text Generation* in the *Configure* menu).

To delete a font entry, simply highlight its name and press v or x. Exit the dialog box by using the mouse or t to select *OK*, or press d to accept the choice.

Load Resources File

Firmware upgrades are provided in the form of resource files. In order to install a firmware upgrade in an XLI, the user will need to load a resource file, provided either on diskette or downloaded via email.



A resource file may contain the XLI code, the XLI boot kernel (used by XTRAEDIT to configure the unit), fonts, configurations, default configuration and the non-shrink fonts list. The software distributed with the XLI contains all of the above except the non-shrink fonts list. Firmware upgrades will contain all resources necessary.

Command Line Interface

The user may display the contents and the description of each resource file by using the DOS command TYPE.

A resource file can be loaded outside of XTRAEDIT by using the command line interface. XTRAEDIT /R=*filename* will load a resource file. All resources with the same name will be overwritten. If no filename is specified, a resource file named RESOURCE.AGL will be loaded.

LPT[1|2|3] may also be entered on the command line in order to avoid being asked the port number to which the XLI is attached.

The parameter /Z will throw away all resources in the XLI and then load in the new set. Make sure the resource file has all necessary components before using the /Z parameter.

Save Resources to File

If the user has several XLI units that are to be configured identically, it may be far easier to configure one XLI, save the configuration to a resource file on the XTRAEDIT diskette, and then load the resource file from that diskette to the other units, rather than to configure each XLI individually.

The user may select which resources are saved in the resources file. This enables the user to save only those resources that will be shared by other users, or whatever other reason the user may have for saving only some of the XLI resources.

The user may enter a description for each resource file saved. When loading the resources, the comment entered will be displayed (only the first twenty-characters) in case the user has saved different configurations.

Pack XLI Memory

When resources (fonts or configurations) have been deleted from the XLI, gaps are left in the XLI's flash memory. These gaps can be filled only by resources that are smaller than the space left by the deleted resource. To create a unified, contiguous free space for the installation of more

resources, the user should select this option after deleting any resource. After the dialog box is displayed, use the mouse to select OK, or press d to pack the XLI memory. When the confirmation dialog box is displayed, select Yes to continue.

Preferences Menu

This menu contains the options *Measurement Units for Entries* and *Confirm Before Updating XLI*.

Measurement Units for Entries

XTRAEDIT asks the user to enter measurements in several dialog boxes during the configuration process. For instance, the user may enter measurements for page size, margins, offsets, absolute line spacing, coordinates and tabs. This option determines whether the user's entries are entered and displayed in inches, 1/60-inch units or 1/300-inch units. The default value is *300ths*.

Regardless of the format in which they are entered and displayed, all measurements are stored by the XLI in 1/300-inch units. As such, all values entered as tenths, hundredths or thousandths of inches will be rounded down to the nearest 1/300-inch equivalent.

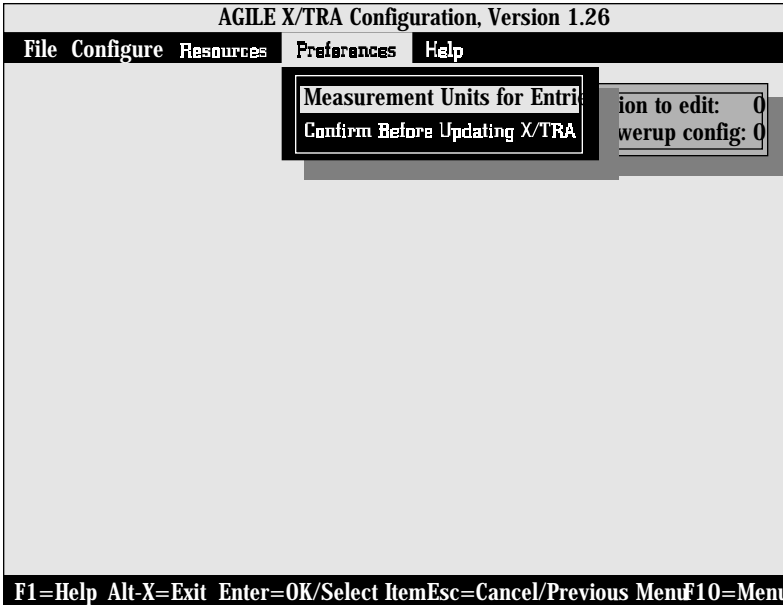
Note that the numerical entries displayed will change after the user changes the unit of measurement. For instance, a margin of 1.000 in inch units will be displayed as a margin of 300 in 1/300-inch units. The actual margin measurement itself will not be changed simply by changing the unit of measure.

Note: This setting is not related to the setting in Units of Measure under Other Options in the Configure menu. Measurement Units for Entries is used only for measurement units entered within XTRAEDIT.



Confirm Before Updating XLI

After configuration changes have been made, the changes have to be written to the XLI's memory. This option enables the user to determine



whether or not XTRAEDIT will display a warning message immediately prior to the changes being written. If the user chooses *Yes*, the warning message will be displayed, allowing the user to cancel the changes. If the user chooses *No*, the XLI configuration memory will change without any warning and without any opportunity for the user to cancel the change. The default value is *Yes*.

Changes to the configuration of the XLI are not installed (saved in the XLI's flash memory) until the user either quits XTRAEDIT, or uses the *Install Settings Now* or *Install As New Configuration* commands.

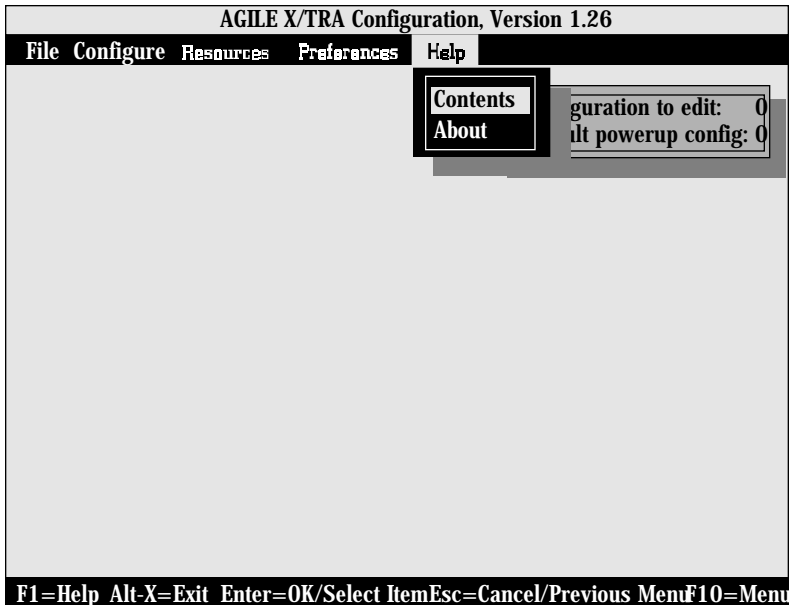
This command will not affect the *Delete Configuration* command or *Font* menu commands such as *Load Font*, *Delete Font*, *Pack XLI Memory* and *Non-Shrinkable Fonts*. These commands write information to the XLI memory immediately, and regardless of the setting of this option, confirmation messages will be displayed before deleting fonts or configurations.

Help Menu

The *Help* menu enables the user to look up information on an XTRAEDIT topic out of context. (Context-sensitive help is available at any time by pressing the 1 function key.) The *Help* menu contains the options *Contents* and *About*.

Contents

Contents is a directory of topics available in the on-line help file. Selecting an item in this list will automatically display information about the topic.



After reading the information displayed on the screen, users can either return to the *Contents* menu or get information on other topics, the names of which may be displayed on the screen. Mouse users can simply move the mouse pointer to the topic name and press the left mouse button to select it. Keyboard users can use the tab key to highlight their selection, and the enter key to accept the choice.
